# The Builder.

VOL. LXXVI. No. 2929 MARCH 25, 1899.


## ILLUSTRATIONS.


Proposed New Government Offices :—
War Office : Front to Whitehall and Part of Front to Whitehall-place.—Mr. W. Young, F.R.I.B.A., Architect ..... *Double-Page Ink-Photo.*
Westminster Block : Front towards Parliament-street.—Mr. J. M. Brydon, F.R.I.B.A., Architect ..... *Double-Page Ink-Photo.*
Plans of Government Offices ..... *Two Single-Page Photo-Lithos.*
The Royal Pavilion, Paris Exhibition, 1900.—Mr. E. L. Lutyens, Architect ..... *Double-Page Photo-Litho.*


*Blocks in Text.*


Block Plan of the new Government Offices (Westminster Block), showing its relation to the Home and Foreign Office block .....Page 290
English Roya Pavilion for the Paris Exhibition.—Plan .....Page 300
New Baths, Shoreditch.—Plan..... ..... „ 304


## CONTENTS.


The Designs for the New Government Offices ..... 289
Notes ..... 291
Notes from Paris ..... 293
The Royal Institute of British Architects..... 293
The Architectural Association ..... 295
The Surveyors' Institution..... 299
Institute of Sanitary Engineers..... 299
Drawings for the Royal Academy ..... 300
Competitions ..... 300
Designs for the New Government Offices..... 300
The English Royal Pavilion for the Paris 1900 Exhibition ..... 300
Phœnix Fire-Resisting Plates ..... 301
Engineering Societies ..... 301
Archæological Societies ..... 302
The London County Council..... 302
Applications Under the London Building Act, 1894 ..... 303
New Shoreditch Baths..... 304
The Building Trade Dispute..... 305
Books Received ..... 305
Local Government Bill..... 305
Bacterial Purification of Sewage ..... 305
Architects and Secret Commissions ..... 30
General Building News ..... 305
Sanitary and Engineering News ..... 306
Foreign ..... 306
Miscellaneous ..... 306
Capital and Labour ..... 307
Legal ..... 307
Meetings ..... 308
Recent Patents ..... 308
Some Recent Sales of Property ..... 309
Prices Current of Materials ..... 309
Tenders ..... 310


### *The Designs for the New Government Offices.*

THE general designs for the new War Office block and the new block of Government Offices in Great George-street (to be known as the Westminster block), together with the proposed ground plan of each, have been exhibited to members of the House of Commons this week; and by the courtesy of the First Commissioner of Works we have had a separate opportunity of examining them, and of publishing the perspective view and ground plan of each in our present issue. It should be understood that the drawings now exhibited are not to be regarded necessarily as final or as the complete development of the scheme, but they represent the general treatment of the two buildings which has been arrived at by Mr. Brydon and Mr. Young respectively, as the architectural expression of the requirements of the Office of Works.

The result so far is certainly satisfactory, not only in regard to the two designs considered in themselves, but in regard to the general spirit in which the whole scheme has been carried out. Unlike the London County Council, and unlike too many previous First Commissioners of Works, the present head of the Office of Works seems to have aimed at giving full weight to the criticisms that have been made by architects in evidence before the Special Committee, and adopting them as far as possible.

To deal with the question of plans and sites first, we are agreeably surprised to find that, in regard to the Westminster block, the Government have decided on the largest policy, and have asked Mr. Brydon to prepare a plan for covering the whole of the Great George-street site from Parliament-street to St. James's Park (including the Civil Engineers' building) with an immense block of building forming a complete whole in itself. It cannot all be carried out at present; neither the land nor the money can all be had at once; but the great point is that instead of laying down a complete design on the extent of land now available, and leaving the future to chance, the building to be now erected will be only a part of a great whole, the remainder of which will be completed when the rest of the site can be acquired. This is the true spirit in which to work; this is returning, so far as is still possible, to the principle, long ago proposed by Barry, of planning offices on a great uniform scheme, and carrying out each portion in turn as a stage towards the completion of the whole. The opportunity for so grand and complete a scheme as Barry devised is, unhappily, lost for ever; but it is something, at all events, to find the Government building department, though late in the day, returning to this broader and grander principle of carrying out public buildings.

In dealing with the front towards Parliament-street, it has been decided to set this back from the line of the Home Office front as far as the Treasury building sets back on the other side of the Home Office, so as to make the three fronts form a symmetrical group. As we have before observed, there is this disadvantage in the arrangement, that in coming down Whitehall southwards the front of the new building will be hidden behind the projection of the Home Office front, so that the line of street will appear to end at the angle of the latter building. This, however, will only be from a point rather high up Whitehall; and the arrangement has counterbalancing advantages. It will make a wider opening at the lower end of Parliament-street, and open up the view of the Abbey better; and the architectural treatment is such as to connect the three buildings into a very dignified and effective group. The large rounded angle at the south-east corner of the new building, which appeared in the original block plan, and which is a rather commonplace treatment with no practical advantage, has been abandoned, and the Parliament-street front of the new building will run down to a right angle at its junction with Great George-street, the front being parallel with the line of the east side of Parliament-street.

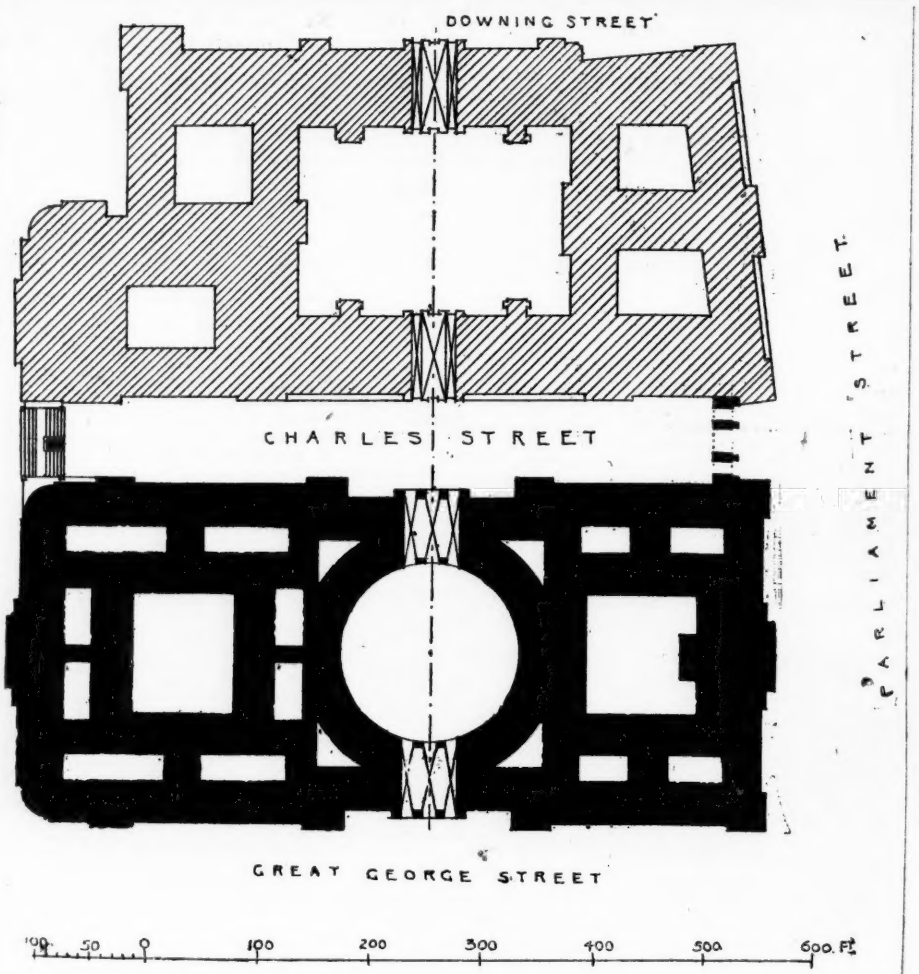
The general arrangement of the complete plan of the Westminster block, as it will ultimately be when entirely completed, and its architectural relation to the block of the Home and Foreign Offices, are shown in the small block plan appended (see next page). The great circular court in the centre of the new building is placed axially with the great court of the Home and Foreign Office block, with a vista right through the carriage entrances. This circular court is 160 ft. in diameter; not too much, certainly; and in order that it may not appear tank-like it is kept one story lower than the rest of the building. Until the block is entirely completed this will of course have to remain a semi-circular court only. The side courts are 100 ft. square. The smaller courts are only for lighting corridors and lavatories; the arrangement being adopted, which from henceforth we may take it will be generally accepted in all Government buildings, that all corridors are to have direct light, from an area or otherwise. High rooms, except for two or three rooms for exceptional purposes, are to be avoided, the average height of the office rooms being about 13 ft.

Mr. Brydon's design, without going beyond the generally accepted details of conventional classic design, is dignified and well proportioned. There are two stories of plain rusticated work with windows set in it, forming a lofty kind of podium supporting a Corinthian order above, with two stories of windows between the columns, the lower ones high windows with pediments over them, the upper ones square. In the centre, which projects slightly, the columns are coupled and carry a pediment with sculpture in the tympanum. The high attic behind the pediment looks to us rather heavy; there is a little too much of it, and the pavilions which rise above the cornice line at the angles might be susceptible of rather more graceful treatment. We should be inclined, also, to plead for something a little less hackneyed than the conventional terminals on these pavilions. As a whole, however, the front is a harmonious composition. There seems to be an idea at the Office of Works that the order and the main cornice would be better for being raised a little; but we do not see it; the upper and lower portions of the design are well proportioned as it is.

The manner in which the new building is connected with the Home Office and Treasury blocks is one of the best points in the design. It may be remembered that there was talk of connecting it with the Home Office by a bridge across the eastern end of Charles-street, and one or two witnesses before the Committee spoke

strongly in favour of making this bridge a monumental erection, and not being content with a mere utilitarian flying-bridge. These recommendations have not only not been neglected, they have been bettered. The bridge is provided for by a great portico or arcade of three arches, on columns, crossing the end of Charles-street, with a deep sculptured frieze above the arcade, the whole being crowned by a quadriga group facing to Parliament-street. But what gives still more value, architecturally, to this device is that the narrower opening of Downing-street, between the Home Office and the Treasury, is connected by an arcade and bridge of similar type, differing in design in consequence of the difference between the width of the openings, but on the same lines. Thus the three buildings are architecturally connected together, and the connexion is a practical as well as an architectural one, as there will be direct internal route along the whole of the three buildings, which, as far as communication is concerned, will form practically one building. To conclude, the incomplete state of Scott's front to the Home Office, which has always been an injustice to him, is to be remedied by the erection of pavilions above the two angles. These will not be as lofty as those designed by Scott, but the design will be none the worse for that; Scott's pavilions, lofty and crowned with cupolas, were too high in proportion to the rest of the front, and the general effect will be better with those which are now designed, both in regard to the Home Office itself and to the grouped effect of the three buildings.

Coming now to the Whitehall site and the War Office, we may note first that the authorities have again given due weight to the evidence of the architects in favour of ultimately widening the upper portion of Whitehall. In view of this, they have declined to entertain any scheme for enlarging the Admiralty by acquiring Drummond's bank and the houses adjoining it on the west side of Whitehall. It is understood that the insurance life of the old Admiralty buildings is only about forty years; when that period has elapsed something will have to be done; and things are to be left in such a state that a new line of frontage may then be taken, so as to widen the street and centralise it to some extent with Trafalgar-square. We are also glad to learn that the idea of erecting any Government building on the inadequate triangular strip of land left between the proposed prolongation of the Mall and the north end of the new Admiralty may be considered to be definitely abandoned. Something will have to be done with the space, no doubt; and we may suggest that it would be a good site for a public monument of some kind, when there is anything to set up a monument to. Following the same principle of allowing for the improvement of the line of Whitehall, the west front of the War Office is to be set a little back from the former building line, bringing it in line with the front of the Banqueting House. The irregularly-shaped and inadequate site for the War Office is, we regret to say, retained unaltered, but we are given to understand that the question of extending the building further north, across Whitehall-place, as suggested in the paper read at the Institute of Architects, was not left unconsidered. There




*Block Plan of the new Government Offices (Westminster Block), showing its relation to the Home and Foreign Office block.*

were difficulties, however, pecuniary and other, as to acquiring the land; and, moreover, the War Office authorities objected to the extension of the building, on the ground that it would place the different departments too far apart, and leave too much space to be traversed from one set of offices to another. This seems a rather odd piece of reasoning, for it is obvious that if a certain area is not allotted horizontally, it must be found vertically, and that it is only the difference between traversing an extra corridor or mounting an extra flight of stairs, and of the two the former is the easier task. However, the site is retained, and the best has to be, and we think has been, made of it. It is rather amusing to notice that, while we were repeatedly assured, after the reading of Mr. Statham's paper at the Institute, that the block plan of the War Office shown on the original Parliamentary plans meant nothing and was not intended as showing the way in which the site was to be covered, the complete plan as made out follows the same lines, with the only difference that the central court, formerly about 95 ft. square, has been lengthened to about 160 ft. one way, and one very small court done away with; but the objectionable triangular court, with its narrow end into which, on one side, offices look, is still there just in its old proportions; and of course the objection of the irregular shape of the building, which we described as more suitable for a hotel than a first-class public building, still exists in full; and this will go far to spoil what might have been a fine building. Mr. Young, in his design, has done the best he could do to mask and minimise this defect of the site by his treatment of the angles of the building. Each face terminates with a square projection normal to the main line of the front, and between these projections is fitted a circular pavilion which serves to connect them and to hide as far as possible the inequality of the angles. These circular pavilions are crowned with cupolas of very graceful design, and rather in the spirit of Wren. Like Mr. Brydon, Mr. Young treats his two lower stories as a mass of rusticated walling, and above these introduces an order, in this case Ionic, with the columns standing free, and giving a very bold effect. This was the one point on which Mr. Young encountered serious opposition from the authorities, on the ground that the free columns would interfere with the light; but this interference, considering the width between them, will not be material, and there can be no doubt that the reduction of the order to half-columns against the walls would be of the most serious injury to the architectural effect of the front; and it is fortunate for the building that the architect was able to persuade the authorities to accept his views on this point. In the side elevation, towards Whitehall-place, the order is used to emphasise the central portion only. In the centre of the Whitehall front is a boldly rusticated porch, which balances and contrasts with the graceful design of the cupolas. The perspective view is rather deceptive in appearance; there seems to have been an attempt to show the flank elevation rather too fully for perspective effect; it gives almost the idea of a single front of which the two sides are at an obtuse angle (like Sir John Soane's mode in the Soane Museum); the perspective of the flank ought to fall away more to give the true effect. The angle is not a

right angle, it is true, but it is a smaller angle than would be supposed from this drawing.*

In order to give something like monumental effect to a building on this irregular site, a striking proposal is made; viz: that the new building should ultimately be architecturally connected with the Banqueting House, by a decorative screen across the end of the street facing the Horse Guards; and it is proposed that when at a future time some new offices may be required which can be built north of the War Office, these should take the shape of a "double" of the Banqueting House, connected with the War Office by a similar screen. This will no doubt produce a fine and dignified effect, and will be in keeping with the somewhat similar manner in which, as already described, the three buildings on the other side of Whitehall and Parliament-street are to be connected. It is gratifying to see that here again there is the attempt to look ahead in regard to architectural effect, and to plan a grand scheme, though the whole of it cannot be carried out at once.

On the whole, we must think that the result so far promises to be satisfactory—most completely so in regard to the Westminster block, since nothing can quite get over the unfavourable conditions of the War Office site, though, on the other hand, the architectural treatment of the façade towards Whitehall is a very fine piece of architectural design. But there has been the evident desire on the part of the Government to carry out something creditable to the country—a desire in which they have been ably seconded by the two architects; and certainly the buildings will be something very different from the unhappy fiasco of the new Admiralty buildings.

As already observed, the plans and designs as shown here are not to be regarded as quite final; the perspective views are rather studies for the buildings, to enable the public and the Legislature to form some opinion of what is going to be done; though probably they will not be materially altered in execution, nor do we indeed see any reason why they should be.

## NOTES.

The Architect to the L.C.C.

THE London County Council, after all their large offers to obtain a first-class man as their architect, have appointed Mr. W. E. Riley, an Admiralty Surveyor; the choice being apparently determined in great measure by the fact that he has been accustomed to the control of a large staff. Administrative ability is no doubt an important element in such a case, but it is not everything; and we had hoped that the appointment would have fallen to some one who would have exercised a beneficial influence on municipal architecture and architectural policy in London, and who would also have been thoroughly familiar with London practice. The appointment is a somewhat curious anticlimax, after all the professions that have been made of a desire to obtain the services of an eminent architect.

The Workman's Compensation Act Again.

THE misfortune of the numerous decisions on the Workman's Compensation Act is that they do not settle any principle. There arises in these cases the question whether certain facts bring the matter within the Statute. No sooner is one case decided than another, different in its circumstances, turns up, each decision tending to show how unfair is the working of the Act. Last Saturday the question which came before the Court of Appeal was whether painting a house was "repairing" it within the meaning of the Statute, and whether the rung of a ladder was a "scaffold." The Court of Appeal reversed the decision of the County Court Judge, and held that the case did not fall within the Act. We confess that we cannot see why painting is not repairing. Woodwork requires paint for its preservation; a roof requires slates put in. Yet, apparently, if a workman loses his life while painting a building he is not within the Act; yet if he were putting a few slates in the roof, he would be entitled to compensation. Again, a carpenter who fastened a bit of wood to a window would be entitled to damages if injured—he was repairing the building. But if he painted it afterwards he would be excluded if injured at that particular time. The truth is, as we have over and over again pointed out, that the Act is most absurdly limited. There is no principle in it; there is an arbitrary limitation introduced simply and solely because the persons excluded had not sufficient electoral powers to make it worth while for the Government to include them within the provisions of the statute.

London Water Supply.

WHILE it was to be expected that the two Bills of the East London Water Company, brought forward on Tuesday last—one to raise a million and a half sterling for the construction of reservoirs, the other to provide for the temporary needs of the same district—should be passed, it was almost a foregone conclusion that the County Council's Welsh Reservoirs Bill should be strongly opposed. In the terms of Mr. Whitmore's amendment, "it is inexpedient that the Bill be read a second time before the Royal Commission on London Water Supply has presented its Report." As Mr. Whitmore pointed out, a Select Committee on such a Bill could not even know that the London County Council would be the water authority for London; and under any other supposition the Bill has no logical basis. The amendment was carried by 206 to 130; a majority not so large as we should have expected to find, though large enough to form a decisive expression of opinion. The Bill is entirely premature, and is obviously what may be called a political move.

Gas Testing by the Portable Photometer.

AT their last meeting the London County Council had under consideration the question of gas testing by means of the portable photometer. Over 80 per cent. of the tests made in various parts of London during 1894, 1895, 1896, and 1897 with this instrument show an illuminating value below what is technically known as 16 candles, which is the standard gas value for the City and the Metropolis as fixed by Parliament. During the same period, however, daily tests were also made by officers of the London County Council, but at official stations and in accordance with the provisions of the various Gas Acts, and these showed that the gas was above the standard illuminating power. These results may appear contradictory, but are not really so; for coal gas (especially when enriched) is an unstable body, and gas supplied through the same mains from works five miles distant may appear of different value in two adjoining houses. In small service pipes having frequent bends deposition of some of the light-giving hydrocarbons is more likely to occur than in large services having few bends or contractions. Moreover, the temperature of the testing-room and of the water in the testing meter has an important influence upon photometrical results, and we suspect that the unofficial tests were often made at low temperatures, whereas the official stations are seldom allowed to fall to a temperature below 60 deg. F. Pure coal gas as made in London has an illuminating power of from 14 to 15 candles, and this is enriched to the 16-candle standard by oil or carburetted water gas. To obtain 16-candle gas under any conditions likely to obtain when tested by the portable photometer the gas would have to be enriched to a greater extent than at present, and the game is not worth the candle. The expense of enriching, which has of course eventually to be borne by the consumer, is out of all proportion to the increased value of the gas. For heating purposes, or for use with incandescent burners or the albo-carbon light, the increase in efficiency of 20-candle gas over 15-candle gas is comparatively slight. We strongly advocate the supply of unenriched coal gas, at the cheapest rate possible, in preference to the supply of a richer gas at a considerably higher price.

Improvements at the Law Courts.

IT is satisfactory to find from the recently issued Civil Service Estimates that the Government has at length made up its mind to undertake some of the improvements which have long been urgent at the Law Courts. Two lifts are to be provided at a cost of 1,750*l.*—one, we presume, in each wing of the building. This is an improvement which it has been over and over again urged in this journal was a pressing necessity, and the sooner the addition is made the better. The sum of 1,500*l.* is to be spent on improving the ventilation of the courts. We can only hope that the money will not be thrown away and that the atmosphere of the courts may really be improved by the outlay. A very small sum would make the ventilation of the passages better. At present they help by their bad air to contaminate the atmosphere of the courts. We see no provision made for completing either the electric lighting of the building or the warming of it. Surely by the end of the century the necessary work at the Law Courts might be completed.

Premises for the L.C.C.

THE London County Council agreed at their meeting on Tuesday to purchase for 100,000*l.* the freehold interest in the premises Nos. 26 and 27, Cockspur-street, in order to provide additional office accommodation. That more and better accommodation is needed no one acquainted with the facts can doubt. The Architects' Department, for instance, is located in the main building; 17, Pall Mall East; 40, Craven-street; 13, Spring Gardens; and 15, Spring Gardens: the Engineers' Department being accommodated in the main building; 15, Spring Gardens; 31, Spring Gardens; and 42 and 43, Cranbourne-street—which is

* Some further information as to the general idea of the plan and design will be found under the head of "Illustra-

nearly half a mile from the main building! Not only do the officials of these and other Departments suffer great inconvenience, but, as is obvious, the work of the Council suffers too, and, seeing that the acquisition of the Cockspur-street premises will afford accommodation for 140 officials, there is much to be said in favour of the purchase. The cost is considerable, and it affords another illustration of the manner in which property in London is continuously increasing in value; but even if the Council acquire, within the next few years, another site for a new County Hall, the course now agreed to would prove to be an economical one. Some of the members of the Council appear to think that in view of the Holborn-Strand improvement, and the possibility of getting a more suitable site for a County Hall somewhere on the line of route, it is unwise to acquire new premises at Spring Gardens. In our opinion, it is unlikely that a more suitable site will be found anywhere else in London than the Council now possess at Spring Gardens.

---

The New York Fire.

SUCH catastrophes as the New York hotel fire are generally followed by what is termed panic legislation; or, in other words, hastily prepared enactments. If we are rightly informed by the daily Press, the American Legislature already has before it a measure to ensure better protection in large caravansaries such as the Windsor Hotel. Without wishing to impose upon the London innkeepers any onerous restrictions as to the safety of their premises, we hold that the opportunity might be taken to inquire into the risks attendant upon structures of this description, with the view of legislating for their better control. There is not the slightest doubt that the modern hotel is often a regular fire-trap, no matter how boldly it be advertised as a "fire-proof" building. The lifts, which form natural flues, are in themselves among the greatest hazards in a building of this description, whilst the decrease in staircase accommodation prevents facilities for ordinary exit in case of panic. Whatever precautions ought to be taken in our future hotel buildings, they should primarily relate to the possible division of the block into separate "risks," and the provision of ample exits. In other words, hotel protection becomes a question of good planning. To rely on so-called "fire-escapes," is simply ridiculous, for it generally requires an able-bodied man in best training, not to say an acrobat, to do justice to many of the life-saving appliances now in the market.

---

The Sewage Problem in Manchester.

THOSE members of the Manchester City Council who thought that the unanimous recommendation of the three experts in favour of the bacterial treatment of the city's sewage would at once settle the vexed question, had their happy dream dissipated at the last Council meeting. The advocates of the culvert scheme again brought it forward; and, although they were unsuccessful in their main contention, they succeeded in referring part of the Committee's Report back for further consideration. In his evidence at the Local Government Board Inquiry, Mr. Baldwin Latham, one of the three experts, said, "There cannot be any doubt... that the proposed works" (*i.e.*, the bacteria beds) "will be successful and relieve the Corporation of Manchester from all future embarrassment, so far as the purification of sewage is concerned," and the Committee thereupon recommended that he be appointed engineer for carrying out the works. This recommendation, however, failed to meet the Council's approval, and the Committee was asked to reconsider it, and also to prepare accurate estimates of the cost of the proposed works. How they are to prepare accurate estimates unless an engineer is appointed and a complete scheme prepared, we fail to see. Estimates based on guesswork or on incomplete designs are almost invariably characterised by gross error, and the Council will only have itself to thank if the history of the Ship Canal cost is repeated in the history of the cost of the sewage-disposal works.

---

Automatic Couplings on Railways.

WHATEVER may be the ultimate fate of Mr. Ritchie's Regulation of Railways Bill, there is no doubt that its introduction marks a step in the direction of the adoption of automatic couplings in this country. The opposition which the proposal has already encountered was inevitable, in view of the great expense involved. The cost, at the outset, would certainly be enormous, although it would probably come out much below the 10*l.* per wagon estimate. The fact that, in any case, several years are to elapse before the order is made, is all in favour of economy. It will be a great spur to inventive genius, and it may be confidently anticipated that many designs, of varying cost and adaptability, will be forthcoming to compete with the more costly systems already in use. We are glad to notice that the labelling of wagons on both sides is dealt with in the Bill, for shunters frequently incur great danger through being compelled to get round to the opposite side of a wagon in order to ascertain its destination. We do not like to see the Bill described as a measure "for the benefit of careless shunters." Their work is about the least desirable one can imagine in rough weather—particularly at night—and they ought at least to be protected from preventible accidents. Theirs will always be risky, hazardous work, even when this is done.

---

London Government Bill.

THE District Surveyors' Association have presented a petition against the London Government Bill, or rather against certain clauses in it, mainly in reference (naturally) to the interests of their own body, which are entirely overlooked in the Bill; but in this case the interests of the District Surveyors are also the interests of the public, and of those concerned in building more especially. As they say in their petition, "the transference of any of the provisions of the Building Act to the control of the Borough Councils would not be for the public benefit."

"The Building Act deals with matters common to the whole of London, and is therefore more efficiently and uniformly administered by the central authority and the District Surveyors. Were powers under the Act transferred to the Borough Councils, the District Surveyors would no longer be able to carry out the duties of their offices in the same just and fearless and impartial way as heretofore. The Borough Councils will frequently contain among their members builders and owners of property whose private interests will be at variance with the duties now discharged by the District Surveyors under the Building Act, and should the Powers under the Building Act relating to the appointment, control and dismissal of District Surveyors be transferred to the Borough Councils, it will manifestly be very difficult for a District Surveyor to enforce the provisions of the Building Act against a member of the Borough Council who may use his influence to procure such Surveyor's dismissal, or to prejudice him in his official capacity. The transference of the powers under the Building Act from the central authority to numerous local bodies will also militate against amendments of such Act being made as occasion may arise."

With all which we entirely concur.

---

The Old Priory, Bedford.

WHEN historic buildings are situated in business thoroughfares, where the speculator grasps at every available foot of ground, it is often a difficult matter to preserve them. But it would have been thought that the old Priory buildings at Bedford, which are so out of the way that it is no easy matter for a stranger to find them at all, would be more fortunate, especially as they are now the property of the Corporation. It appears, however, that some of the town councillors have sinister designs upon them, as the following extracts from a letter received by a member of the Corporation, and published by a local journal, serve to indicate:—

"What good will it do you to 'move that the Old Priory be pulled down forthwith?' You and a few more will not be elected again, I give you my word. Let us have as much of the antiquities of England left unmolested as possible. Remember poor old St. Alban's Abbey and weep for its present deplorable condition. A magnificent Norman specimen of architecture (the tower and parts even earlier) ruthlessly given over to a brother 'bounder' of yours to do as he liked with, and what has he done? Restored it! So that it now resembles a modern Wesleyan Methodist Chapel, or something worse. When you and such fossils as Lord 'Grim' can design and build anything approaching the Old Priory (which the saints preserve) then England and its men will be happy. Until then, my friend, confine your remarks to subjects that you understand, although these be few, as I know."

There are probably many others in Bedford and elsewhere who, though they would never dream of speaking or writing so impolitely as this, will feel, with a certain sense of indebtedness, that this outspoken individual has exactly expressed their own sentiments. May his reward be the compulsory retirement of the offending councillor at the next election, and the preservation of the remains of the old Priory.

---

Institute of Painters in Water-Colours.

THERE are very few important works at the exhibition of the Institute of Painters in Water-Colours; and there are a good many very bad ones. The best exhibits are mostly among the small landscapes; those of Mr. Joseph Knight, Mr. Cotman, Mr. Geo. Marks, and two or three others. Mr. Wimperis sends a gloomy and powerful study of Ben Nevis (242), and Mr. Weedon, in "Waste Ground near Lymington" (423) exhibits a work rather in Mr. Wimperis's manner. Mr. Gulich's "An Art School" (427), though rather foggy in style, is an ambitious and clever work. Among other figure subjects are Mr. Dollman's "Moses at the Fair" (41), in which the simplicity of the lad is well contrasted with the character of his two critics, one of whom must be Mr. Ephraim Jenkinson; Mr. Robert Fowler's "The Escaped Bird" (100) is a pretty poetic fancy; so, in a more serious way, is Mr. Henry Stock's "Heart-wound" (336), a half-length nude

figure in a star-lit wood—a work of much feeling; and Mr. Gregory's little figure-painting, "Her lute string gave an echo to his name" (334), admirably painted, but totally destitute of feeling. Mr. Fulleylove sends a good many studies in the neighbourhood of Athens, of which the most important is the large and fine drawing of the Jupiter Olympius columns (297); he has also a very good smaller drawing of the Erechtheion (191). Among the smaller works which have definite quality, besides those alluded to above, may be named Miss Hagarty's "The Old Windmill" (167); Mr. Macquoid's "Place Van Eyck, Bruges" (203) a good architectural subject; Mr. Robert Carrick's "Girls among the Flowers" (236); Mr. Aumonier's "The Rising Moon" (274); Sir J. D. Linton's "The Sampler" (294), as an example of fine colour; Mr. John R. Reid's "Hay Cutters" (318) for the same quality in landscape; Mr. John White's "Fisherman's Cottage, Land's End" (332); Mr. Winter Shaw's "Grazing" (350); Mr. J. R. Reid's "The Wood-cutters" (365); Mr. Ottewell's "Clouds that Gather Round the Setting Sun" (468), a larger and a really fine landscape; Mr. Bernard Evans's two powerfully treated scenes in the South of France, and Mr. MacBride's night effect called "Ely Cathedral" (566), though there is little enough of the cathedral, and that not recognisable. We should also mention a good architectural subject by Count Seckendorff (Hon. Member), the "Arch of Titus" (243).

---

Mr. Herbert Marshall's Exhibition.

Mr. HERBERT MARSHALL, the special painter of London scenery, has been making a diversion into Holland, and a collection of small water-colour drawings of the "Cities and Rivers of Holland" fills a room at the Fine Art Society's Gallery. There is a certain sameness about these, and the artist has not so thoroughly entered into the spirit of them as he has into that of the London street scenery; nor are these drawings so carefully studied and finished as most of his London scenes. They may, however, form a very good basis for some more finished pictures; and in the meantime the sketches make a pretty collection, though they do not show the artist quite at his best.

## NOTES FROM PARIS.

THE immense dome of the Church of the Sacré Cœur will be completed in time to receive its inauguration during the Paris Exhibition next year. The dome, which will be 280 ft. high when completed, is at the present moment about two-thirds terminated, the remaining portion will be finished towards the month of August of this year, and it is estimated that six months will be sufficient to complete the interior decoration and place on its summit the immense stone cross.

In the interesting competition between Parisian architects, in which prizes and medals will be awarded to the architects and owners of the six buildings erected at Paris during the past year considered by the jury to be of the best design, fifty-two new houses, comprised in twelve arrondissements of Paris, have been entered for prizes by their architects or owners. The jury is composed of nine members, having as president M. Bouvard and his official deputy-architect, two architects chosen by the competitors, and five members appointed by the Municipal Council. This jury has been visiting the various houses, and will shortly award the prizes, consisting of six gold medals of the value of fifty pounds each, to the architects, and to the owners the exoneration of half the street dues generally paid for new houses. The medals are engraved by M. Daniel Dupuis, the well-known engraver to the Government; on one side is an allegory of two figures representing the French Republic and the town of Paris; on the reverse side will be engraved the names of the prize-winners. The two architects designated by the competitors are MM. Guadet and Bonnier. The idea is an interesting one, and it is proposed to offer the same premiums each year. It is true that the inducement to both architects and owners is small as regards pecuniary reward, but it is believed that the honour, and the idea of entering for the competition, will prove incentives to sound endeavours towards the improvement of street architecture. An indication of this is given in the rapid improvement which has been made lately since the adoption by the Town Council of less stringent rules regarding the dimensions of projections and the heights of new buildings. Since the new rules have come into force there has been a sudden birth of new features in street architecture at Paris—boldly projecting balconies and bow windows, cornices, columns, cupolas and turrets, decorated gables and similar features have thoroughly changed the style of the Parisian street, and this is especially noticeable in the new quarters where whole streets have been raised under the new rules. It is true that in a number of cases licence and imagination have somewhat run away with good taste, but it is expected that a new reform in the rules will correct these faults in a large measure, and allow architects to search in a logical manner after new ideas for a modern style of street architecture.

The important work of enlarging the Bibliothèque Nationale is now rapidly proceeding. The scheme, which was proposed and prepared twenty-five years ago by M. Pascal, consists in the building of a large depository for books and journals arranged "en façade" on the Rue Colbert; an immense oval public reading-room, to contain seats for 350 readers, preceded by a vestibule on the Rue Vivienne: and an epigraphical museum and "cabinet de medailles."

The work now going on for the completion of the Metropolitan Railway at Paris has brought about the discovery, under the Place de la Bastille, of one of the towers of the celebrated State Prison. The portion which remains of this tower, once called "Tour de la Liberté," is in a perfect state of preservation, owing to the fact that Palloy, who undertook the pulling down of the Bastille, did not demolish the lower portion of this tower, but simply filled up the moat and brought the ground to a level. It is expected that the further excavations which are now being made will bring several interesting objects to light.

The work on the larger Fine Art Palace of the Champs Elysées is now rapidly advancing, the balustrade above the attic story is nearly completed, the sculptors have begun their work on the capitals, and the work of "ravalement" or moulding the building into form has been commenced.

M. Gout, President of the Committee for the organisation of the participation of the Union Syndicate des Architectes Français at the 1900 Exhibition, lately gave an interesting lecture on the influence of Labrouste and Viollet le Duc on the architecture of the nineteenth century, and in order to emphasise the immense influence of the doctrines professed by the above two architects, in the new attempts made by modern architects, he proposes to organise, during the Exhibition, a series of lectures, in which will be analysed, by means of drawings and projections of the buildings themselves, certain works of the architects who have, during the course of the century, shown in various degrees their adherence to these doctrines.

The various work now being carried out in view of the Exhibition of next year is proceeding with a certain rapidity in some portions, especially in private undertakings; the official portions are now apparently somewhat behindhand, and it is to be hoped that the threatening strike of all trades will not come about, or it will very seriously interfere with the work and the proper completion of the Exhibition in time for the opening in May, 1900. We will enter fully into particulars of some of the most interesting work and buildings shortly, as soon as the work is in a more advanced state. Great Britain will be well represented as regards buildings, for certain large surfaces of ground have been allotted for the purpose on the river side, in the grounds of the Trocadéro, and on the Esplanade des Invalides. The Royal Commission, which is presided over by the Prince of Wales, has for some little time been working quietly and unostentatiously at the arrangements to be made with the authorities at Paris, and the preparation of the entire scheme for the proper representation of Great Britain in 1900. Colonel Herbert Jekyll is the secretary and commissioner to the Royal Commission, and receives most flattering attention at Paris on the occasion of his visits to the capital. Mr. E. R. Spearman represents the interests of the Commission at Paris, where offices have been taken close to the Champ de Mars, and his task up to the present has been a very arduous one, so many and complicated are the formalities which have to be gone through with the Exhibition authorities at Paris. The Royal Pavilion will be erected on the Quai d'Orsay, in a central position amongst the pavilions of other nations. This building, an illustration of which is given in the present issue, will be a reproduction of Kingston House, near Bradford-on-Avon, by an English architect, Mr. Edwin L. Lutyens. The Prince of Wales will, it is proposed, hold his receptions in this building when visiting Paris, and it is intended to install therein a most valuable collection of works of painting, jewellery, arms, &c., to form a typical museum of old English art, and this museum will be open to the public at all times when the pavilion is unoccupied by royalty. A large pavilion will also be erected in the gardens of the Trocadéro, to represent the English Colonies. On the embankment, of which the Royal Pavilion will form the central building, will be raised the buildings of other nations. Most of these, those of Germany, Hungary, Belgium and Holland, and Switzerland will, according to the designs which have been submitted to the Exhibition authorities, be very picturesque in design and silhouette, and will contrast strongly with the quiet and severe appearance of the Royal Pavilion.

## THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

### THE BEGINNINGS OF GOTHIC ARCHITECTURE: NORMAN VAULTING IN ENGLAND.

AN ordinary general meeting of the Royal Institute of British Architects was held on Monday evening at No. 9, Conduit-street, Professor Aitchison, R.A., President, in the chair.

The minutes of previous meetings having been taken as read, Mr. William Emerson, Hon. Secretary, announced with regret the decease of Mr. Frederick Mew, Associate, elected 1859, and Mr. William Reddall, Associate, elected 1874.

Mr. John Bilson, F.S.A., then read a paper on "The Beginnings of Gothic Architecture: Norman Vaulting in England." By way of preface to his subject, Mr. Bilson had contributed a paper to the Institute *Journal* reviewing recent investigations of French archæologists into the origin and development of Gothic architecture. The following were the principal works referred to:—"L'Architecture religieuse dans l'ancien diocèse de Soissons au XIe et au XIIe siècle," by E. Lefèvre-Pontalis; "L'Art Gothique," by Louis Gonse; "La Transition," by Anthyme Saint-Paul, in the *Revue de l'Art chrétien*; "Monumens religieux de l'Architecture romane et de transition dans la region picarde," by C. Enlart; and "Die Anfänge des gothischen Baustilo; zur Kritik des gegenwärtigen Standes der Frage," by G. Dehio, in the *Repertorium für Kunstwissenschaft*. The author commended these researches to the attention of English students still prone to accept as final the judgments of earlier writers such as Viollet-le-Duc, some of which have been found untenable in the light of more recent inquiry. Mr. Bilson stated that in his prefatory paper he had made free use of Herr Dehio's masterly treatise, the general conclusions of which must, in the main, eventually win acceptance even among the younger French school of inquirers.

In opening his paper on "Norman Vaulting in England" the author touched upon the development of Norman Romanesque resulting from the revival of architecture in Normandy early in the eleventh century, and noted some of the most striking characteristics. Available literary evidence tends to show that some of the Norman methods were already in use in England before the Conquest, but we are not justified in believing that the design of these English buildings was

marked by the logical precision so characteristic of Norman work, or that the English had taken any step in the direction of vaulting over their churches.

In studying the development of vaulting as illustrated by English examples between the Norman Conquest and the middle of the twelfth century, the author dealt first with the vaults of the lower parts of churches, such as aisles and crypts, citing existing examples of the various forms described.

The ground vault in its simplest form results from the intersection of two semi-cylindrical vaults at right angles to one another—a survival, in fact, of the Roman groined vault. Generally, however, these groined vaults are banded by some circular transverse arches or "doubleaux," usually of simple square section, and forming a kind of permanent centring. The adoption of these doubleaux, however, involved considerable inconvenience in the construction of the springing of the groin. In the Roman groined vault and its imitations the groin springs from the external angle of the pier or pilaster. In many of the early Norman vaults the groin springs either from the internal angle formed by the junction of the transverse arch at its springing with the wall-face, or from the face of the wall or arch close to the angle. As the vaults were constructed of rubble masonry with thick joints, and covered with plaster, this method of springing the groin was obviously defective as a matter of construction. Consequently, we find the difficulty met at a very early date by a further development in the membering of the supporting pier; the pilaster which carries the transverse arch is flanked on each side by a secondary pilaster, which affords an independent support for the groin. In some crypts where the vaulting is supported by single cylindrical shafts, the springing of the vault is subdivided in a similar manner, so as to give a separate projection for the springing of the groin. A further advance consisted in the substitution of a shaft for the square pilaster which supported the groin. At Saint Etienne, Caen, and at Winchester Cathedral, an improvement is found in the construction of certain of the vaults. The haunches of the vault, for a short distance above the springing, are constructed of ashlar, above which the vault is of rubble, plastered.

Having described the modification the simple groined vault underwent when necessitated by the oblong or irregular plan of the bays to be vaulted, the author passed to his main subject, the ribbed vault. Wherever it originated, or whatever the circumstances under which it was evolved, the advantage gained by the introduction of the rib was obvious. It afforded a permanent centering for the groin, the weakness of which in vaults over wide spans must always have rendered them liable to failure. It completed the membering of the vault which had commenced when the transverse arch was added to the Roman groined vault. The new expedient was readily adopted and rapidly developed by the Normans in England as well as in Normandy.

The cathedral church of Durham is the most complete early example of the adoption of the ribbed vault in England. Contemporary chroniclers record that every part of the church was covered with ribbed vaulting between 1093 and 1133. The plan of the choir and east side of the transepts shows that it was the intention from the first to cover both the aisles and the main spans with the vaults which were actually constructed. The aisle vaults of choir and transepts (the various features of which were described in detail by the author), constructed under Bishop William between 1093 and 1096, are clearly part of the original work; masonry and mouldings correspond in character with those of the choir arcades, and, for constructional reasons, the aisle vaults must, as usual, have been erected along with the main walls. The vaults of the nave aisles, the characteristics of which were next discussed, are the work of Bishop Ralph Flambard (1099-1128), and, as he completed the nave as far as the high vault, the aisle vaults may safely be attributed to the first decade of the twelfth century. They correspond in character with the aisle vaults of choir and transepts, except in a few minor points.

The next dated example of ribbed vaulting is to be found in the reconstructed parts of the transepts of Winchester Cathedral. The original work in these transepts belongs to the church which Bishop Walkelin commenced in 1079, and which the monks entered in 1093. The works of reconstruction necessitated by the fall of the central tower in 1107 are easily distinguishable from the original work by the different thickness of the masonry joints. The date of these ribbed vaults may be put within two or three years after the tower fell.

Peterborough Cathedral presents examples of ribbed vaults, the date of which is proved by documentary evidence. The earlier church was destroyed by fire in 1116, and the present building was commenced in 1117 or 1118. In 1140 or 1143 the monks entered the new church. The parts then completed include the choir and east side of the transepts (except, perhaps, the clearstories). The aisles of choir and transepts throughout are covered with ribbed vaults, the distinctive features of which the author described.

The paper then went on to discuss M. Félix de Verneilh's conclusions with regard to the Peterborough vanlts, on which M. Lefèvre-Pontalis based his statement that the ribs were added afterwards in the second half of the twelfth century. M. de Verneilh's theory was that the supporting shafts were designed to receive the projecting groins of unribbed vaults, and that the actual ribs were added afterwards. In the recent taking down and rebuilding of the central tower, however, no evidence whatever was found to support this theory. It is clear that these Peterborough vaults are original from the fact that they do not stand alone, but are analogous in their method and construction to a large number of vaults, which cannot all be the result of such an alteration as M. de Verneilh suggested.

The author then passed to the consideration of examples of similar ribbed vaults to which, in default of documentary evidence, approximate dates only can be assigned from the character of the work. The following examples were discussed:—The vaulting over the north aisle of the nave of Gloucester Cathedral, which may be safely assigned to the first twenty years of the twelfth century; Avening Church, Gloucestershire, ribbed vaults, *c.* 1120-1130; Southwell Minster, the aisles of the nave of which are covered with ribbed vaults, *c.* 1120; the Priory Church of Lindisfarne, built by Ædward (who died probably near the end of Ralph Flambard's Episcopate, 1128)—this church throughout was covered with ribbed vaults, and its design is evidently inspired by Durham; the nave of the Abbey Church of Dunfermline, also inspired by Durham, probably erected soon after the accession of David I. 1124); Selby Abbey Church, whose eastern bays of the nave also afford marked indications of Durham influence; Romsey Abbey Church, vaults of choir aisles; and the church at Lessay, Normandy—examples interesting as showing how the idea of the ribbed vault was introduced, during the course of construction, in works originally planned only for unribbed vaults; the two churches at Devizes, Wiltshire, affording examples of aisleless chancels covered with ribbed vaults, and to be attributed with some probability to the architectural influence of Bishop Roger of Salisbury, and dated approximately *c.* 1125-1130, St. John's being slightly earlier than St. Mary's.

The difficulties which confronted the builders of these early ribbed vaults, so long as they employed only semi-circular or semi-elliptical curves for the ribs, were entirely surmounted by the adoption of the pointed arch for the doubleaux. The nave aisles of Malmesbury Abbey Church have been frequently quoted as the earliest example in England of this new method of construction, and have been attributed to Bishop Roger of Salisbury; it is scarcely probable, however, that the rebuilding of the church was commenced before the Bishop's death in 1139; it must, nevertheless have closely followed that event, and the existing nave cannot be assigned to a later date than the middle of the twelfth century. There is no evidence whatever to support Mr. C. H. Moore's assertion that the vaulting is an imitation of French work. The style of Malmesbury is purely Anglo-Norman, and shows no trace of the influence of such French work as the chapel of Bellefontaine and Saint Denis. At the same time the Malmesbury aisle vaults bring us to the threshold of the complete Gothic vaulting system, and almost to the time when French influence undoubtedly began to affect English work.

In treating of the vaults over the principal spans of churches, the author said that the Normans aimed at covering all parts with stone vaults. The plans of piers sufficiently indicate that the vaulting of the principal spans was intended to follow the vaulting of the aisles. The choir-piers of Saint-Nicolas, Caen, and Saint-Georges-de-Boscherville were cited as typical examples. Each shows a group of three shafts on each side of the pier to carry the arch orders of the main arcades, a single shaft which receives the transverse arch of the unribbed aisle vault, and a corresponding shaft towards the main span. It is not improbable that the failure which naturally attended the construction of the earliest vaults over wide spans may in some cases have rendered subsequent reconstruction a necessity. Very few early examples of vaults over wide spans have survived. The earliest instance in England of a ribbed vault over the principal span of a great church is the choir vault of Durham Cathedral, though here the original vault was replaced by the existing vaults in the thirteenth century. The vault over the north transept of Durham is probably the earliest of such vaults still existing. The evidence of the structure itself, the analogy of the other vaults of the church, and the documentary evidence, taken together, enable one to speak with some approach to certainty of the character and date of the original choir vault of Durham. The plan of the choir, consisting of two double bays, is a type usually associated with a sexpartite vault. But the date is much too early for this kind of vaulting. There can be no doubt that the original choir vault was a ribbed vault, and it may safely be concluded that the choir was originally covered with a double quadripartite vault over each double bay, closely resembling the vault of the north transept, erected almost immediately afterwards.

The vaults of transepts and nave at Durham next came under examination, and were discussed at length, the author showing that the character of the work indicated that the vaulting idea was present in the earlier parts of the structure, and that it was abandoned and again taken up while the work was still in progress. Touching the date of the nave vault of Durham, there is absolutely no authority for Billings' statement, repeated by later writers, that it was constructed between 1233 and 1244, in the Norman style. Symeon's continuator proves that the nave was vaulted between 1128 and 1133, and this is borne out by the character of the masonry of the vault itself.

Durham affords complete proof of the ability of Norman builders to construct ribbed vaults over the principal spans of a great church, and to abut the thrust of these vaults by arches across the triforium, of which the flying buttress is merely a development. Evidences quoted by the author indicate that the choir vault was constructed by 1104; the vault of the north transept may be assigned to a date within the first decade of the twelfth century, and that of the south transept within the first quarter of the century; while the nave vault, with its pointed transverse arches, was constructed between 1128 and 1133. Examples of vaults showing the influence of Durham were cited in the Priory Church of Lindisfarne, no part of which appears to be later than the middle of the twelfth century; and, on a small scale, Warkworth Church (Northumberland).

The nave of Lincoln was vaulted before the middle of the twelfth century. It was built by Remigius, and dedicated in 1092, was injured by fire in 1141, and Giraldus Cambrensis states that it was vaulted by Bishop Alexander. Henry of Huntingdon places the date of this work at 1146. What this vault was like may be gathered from the chancel of Stow Church, Lincolnshire, the detail of which so closely resembles Alexander's work at Lincoln, as to prove that it was executed by the same school of masons. The evidence here indicates that Alexander's nave vault at Lincoln must have been ribbed.

The following early examples of ribbed vaults to apses were referred to, and their characteristics described:—The small apsidal chapel on the east side of the south transept of Christchurch, Hants, appearing to date from early in the twelfth century; the apsidal chapel on the east side of the south transept of Tewkesbury Abbey Church, which may be assigned to the first twenty years of the twelfth century; Birkin Church, Yorkshire, middle of twelfth century; the octopartite vault of the Treasury of Canterbury Cathedral; the apse vault of the Chapter-house of Durham Cathedral, a larger and more advanced example, finished by Bishop Geoffrey Rufus, 1113-1140.

The last-named was partly destroyed by fire in 1796, but Carter's drawings have preserved an accurate record of it.

The author concluded his paper with some observations on the bearing of the English evidence on the general question discussed in the prefatory paper above referred to. Before the introduction of the rib, the Normans were already developing the articulation of their construction to an extent quite unknown in the Ile-de-France. The earliest ribbed vaults exhibit a system which is slightly less advanced than even the primitive vaults over the aisles of Saint-Etienne, Beauvais. The large number of ribbed vaults still remaining proves the existence of an active school, which had already accomplished much before the introduction of the pointed arch. It is remarkable that all these English vaults are quadripartite. No example is met with either of the sexpartite vault or of the intermediate form—quadripartite cut by a secondary transverse rib—both of which occur in the group of churches in and around Caen. Obviously the quadripartite vault was the earliest form, and varieties could not have been developed if the quadripartite vault had not previously been known. The evidence of the rib sections points in the same direction. As in their system, so also in the profiles of the rib mouldings; the earlier ribbed vaults in England come into line with the quadripartite vaults at Lessay, and represent an earlier stage than the vaults of the Caen group. These latter, whether sexpartite or of the intermediate form, show one easily-recognised type of rib section—a more refined and clearly later type not found in England until the octopartite vault over the Treasury at Canterbury Cathedral, probably erected soon after 1130. The approximate date of 1130 suggested for the earliest vaults of the Caen group seems probable enough, and the experiments which the builders of these vaults tried in setting out the curves of the ribs indicate that they were not adopting ready-made a system already worked out elsewhere. Apart from the English evidence, the authenticated dates of the earliest ribbed vaults prove that influence from the Ile-de-France is quite impossible, and show the complete independence of the Norman school up to, at any rate, the end of the first third of the twelfth century.

---

Mr. Phené Spiers, in proposing a vote of thanks, remarked that the principle that Mr. Bilson had set forth was that Norman vaulting in England had been of an independent character; that it was not necessarily copied or imitated from architectural work of Normandy. So far from the Normandy architecture being in advance of that of the rest of Europe in the early years of the eleventh century it was behind, compared with the rest of France. M. Ruprich-Robert, the chief authority on Normandy—and he seemed to be fairly reliable—was not himself very sanguine as to the early dates of Normandy work. He instanced and gave illustrations of some early churches, of which the earliest was the very singular Church of Querqueville, a triapsal church, the masonry of which consisted of very small stones, with zigzag work, and indicated a church before the tenth century. There was another small church, St. Saturnin, near St. Wandrille. From the character of the masonry he should think that church went back, at the earliest, to 1030. Then there was the Church of Bernay, which might have been built by Richard II., although he could not get exact references. He gathered that it was commenced after his death, and in a drawing given by Robert there was what he supposed to be the early part of the work, which was somewhat of the same type as the Basse Œuvre at Beauvais. The date was given as about 1030. The nature of the carving in the caps, and the character of the vault distinctly showed a later date, and he (the speaker) thought it was somewhere about 1050. It seemed to indicate the influence of an entirely different school, and he thought of a Burgundian origin, and in a few words he had had with Mr. Bilson, that gentleman suggested, quite independently, the same source. If the date 1050 was correct, then it showed that the Normans were not so far advanced at that period in their architectural development. It was not until one came to the work of William the Conqueror that one began to find the very rapid strides in which all the forms were articulated, all the orders being carried on separate columns—a very marked difference from what one found in the earlier parts of the century. There was a general impression that the Normans were warriors and conquerors and were no architects. We know that they took Sicily and employed the workmen of that island, and the work they produced was distinctly Saracenic. Coming to the question of vaulting wide spaces, an important paper was read before the Institute by Mr. Parker in 1863. After a careful examination of St. Stephen, Caen, Mr. Parker arrived at the conclusion that the whole of the vaulting of this great church was subsequent to the original structure. He was not quite sure of the date, but he thought it was not until 1150. That was from twenty to forty years later than the date given by Mr. Bilson for the vaults at Durham. One would be glad to know where Mr. Bilson found his examples of early vaults in France, except at Lessay.

Mr. Francis Bond seconded, and remarked upon the large amount of labour that had been spent in the preparation of the paper. If Mr. Bilson was right in his conclusions as to the chronology of the high vaults at Durham, then they must come to the conclusion that the architect of the choir vault, alleged to have been completed in 1104, deserved a higher pedestal than the builders of St. Denis, Vezelay, or any other church in Northern Europe; having been the very first to solve the great problem of western Mediæval architecture—how to construct a ribbed vault, divided into oblong compartments, over a high nave set between low aisles and lighted by clearstory windows. The problem had been attacked in an imperfect manner in St. Ambrogio, Milan; in such Cluniac churches as Paray-le-Monial, and at Vezelay; but had been rather evaded than solved. In Durham choir the solution was complete and perfect. But if so, how was it that no English architect availed himself of the Durham solution—with the exception of Lindisfarne, which was an appanage of Durham—till the closing years of the twelfth century? The weak point of Mr. Bilson's case was that it rested on a translation, which might be a mistranslation. The nave was stated to have been finished *ad sui usque testudinem* in the year 1128. If this meant "up to its vault," then the subsequent statement that the nave was completed by the monks in 1133 might be taken to mean that the vault of the nave was constructed between 1128 and 1133. But *testudo* is used of wooden roofs also, and not of stone vaults exclusively; which seems to invalidate the whole hypothesis.

Mr. St. John Hope said the technical character of Mr. Bilson's paper was rather out of his line, but it had a historical side that was very interesting. He would like to ask him whether he had considered the case of Norwich Cathedral, a great church of the Norman period, complete in all its parts, so far as planning went. It was true that the nave and transepts were not vaulted until the fifteenth century, but they did not know whether the presbytery had not been vaulted, because whatever roof it had was crushed in by the falling of the steeple in the fourteenth century and rebuilt. The architectural evidence made it perfectly clear that it was originally intended to vault the church from end to end. The aisles still retained the unribbed vaults, which had wall ribs built by Bishop Herbert between 1096 and 1119, and his successor, Everard, who resigned in 1145. But the division of the presbytery and nave into double bays showed that they were planned to be vaulted like Durham, and the section of the vaulting shafts seemed to prove that the vault was to be a ribbed one. This evidence was corroborated by the existence in the triforium of the responds for the half-arches which were to form the abutments, like those remaining above the nave aisles at Durham.

Mr. E. W. Hudson said he could not help thinking that they had in the cities of London and Westminster some examples of vaulting which illustrated very well its advancement towards the use of the diagonal rib. One he wished to draw attention to was that in the crypt of the Priory of St. John's, Clerkenwell, with bold diagonal ribs, which he should be inclined to put twenty-five years earlier than Rahere's ribless work at St. Bartholomew's of 1123. It was worth close inspection.

The vote of thanks having been heartily agreed to,

Mr. Bilson, in reply, remarked that Mr. Spiers quite misunderstood him if he drew the conclusion that he desired to make England independent of Normandy. When Mr. Bond stated that his (the speaker's) conclusions involved the supposition that a Durham architect was the first to solve the great problem of Gothic architecture—how to construct a stone vault over a three-aisled basilican church with clearstory—was he not considerably overstating his point? To mention only one example in Normandy, the problem, as Mr. Bond had put it, was solved with unribbed vaults in the choir of Saint Nicolas, Caen, which was completed c. 1083, ten years before Durham was commenced. He admitted that his views as to the dates of the high vaults at Durham were opposed to preconceived ideas, but careful study of the building and the evidence had convinced him that the conclusions he had put forward must in the main be accepted. The vaults were obviously of various dates, and it was quite impossible to attribute them, with the chapter-house vault and the high vaults of Lindisfarne, to Bishop Pudsey, as Mr. Bond had suggested in his recent book. They were entirely different in character, and palpably earlier than Pudsey's works, of which we had several notable examples. Mr. Hope's comparison of the arrangement of shafts in the Norwich nave with those in the Durham choir was new to him, and most interesting. He hoped that a result of directing attention to the subject would be the more careful investigation of other examples.

The Chairman announced that the next meeting will be held on April 10, when a paper, arranged by the Art Standing Committee, will be read on "The Application of Colour to Interior Ornament in Relief."

The meeting then terminated.

## THE ARCHITECTURAL ASSOCIATION:

### CERTAIN REFLECTIONS ON THE ENGLISH RENAISSANCE.

AN ordinary fortnightly meeting of the Architectural Association was held on Friday last week in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. G. H. Fellowes Prynne, President, occupying the chair.

The minutes of the last meeting having been read and confirmed,

Mr. G. B. Carvill, jun. hon. sec., proposed a vote of thanks to Colonel Edis for conducting members over the Great Central Railway Hotel, Marylebone,* on the 11th inst., and to Mr. E. Wragge, the resident engineer, for conducting members over the Great Central Railway Station.

This having been agreed to, Mr. Carvill also announced that the next visit will take place on the 25th inst. to the Fire Testing Station of the British Fire Prevention Committee, at North Bank, Regent's Park, at 3 p.m.

The Chairman announced that the new Common Room would be opened on Monday, March 20, at 5 p.m. He added that he hoped that that would be the first step towards new premises for the Association. The new Common Room was a great improvement upon what they had previously, and he hoped that it would lead to further social intercourse between members.

Mr. Sim, senior hon. sec., said that the Chairman had presented a clock for use in the Common Room.

The Chairman having been thanked for his gift, it was announced that the following classes were about to commence:—On March 22, Quantity Surveying, Mr. H. J. Leaning, lecturer; and on April 12, Land Surveying, Professor H. Adams, lecturer.

Mr. Reginald T. Blomfield then read the following paper, entitled, "Certain Reflections on the English Renaissance":—

I have been invited to address you this evening on the subject of the English Renaissance; a subject which, historically treated, would be quite beyond the scope of a single lecture. I propose, therefore, to call your attention to certain aspects of this chapter in history, and to endeavour by this means to disentangle some clue to guide us through the perplexities of modern architecture.

Any conclusions which I may offer you, however I may express them, I offer with great diffidence. The present condition of architecture is so unsatisfactory, and so beset with difficulties, both in theory and in practice, that the most one can hope to attain to is some firm foothold on the facts of history—a foothold from which we can start again with at least a glimmering of an

* See our last issue for a description of the building.

idea of the goal at which we aim. For in architecture, the oldest of the arts, we can only consider ourselves on safe ground so long as we keep in touch with what has actually been. You may recollect the words that Viollet-le-Duc used nearly forty years ago, "If Art has lost its way, let us not impel it the right or to the left under pretence of conducting it into the true path. . . . The study and love of art—not of one form of art—are the only means to which the wise will recur when art seems to decline." It is only by patient and critical study that we can hope to retrace our path to the highway of architecture.

A comparison has been made between the Renaissance of the sixteenth and seventeenth centuries in England and that of the nineteenth (assuming, of course, that the latter exists). In order to test the worth of any such comparisons it is necessary to consider for an instant what that great Renaissance was of which our own sixteenth and early seventeenth century architecture was but a distant echo.

There are two points about this movement which differentiate it from any others in the history of art. The architecture of the ancient world was one long continuous progression from its dim beginnings in the East till its disappearance with the downfall of the Roman Empire. There was no break in the Hieratic Art of Egypt and Assyria. This, again, only developed into a freer and more perfect expression in the hands of the Greek, to be adopted by the Romans and wrought into the full expression of their own magnificent genius. Architecture might flourish in one place more than another, but throughout its long history there was no break in its continuity. Its historical development went straight ahead, with no throw-back to earlier art, till its vitality dwindled, and it died out with the decaying forces of Roman civilisation. There was a curious objectivity about the ancient world which prevented any intense reflection of its life and thought on its visible art. That art was settled for it. It was accepted as part of the established order of the State, and so it ran its course without regret and without ambition.

Now, the Renaissance was a conscious return to the art of the past, to the art, that is, of the Roman Empire. It was not a mere revival It was a deliberate and successful attempt to enter into the spirit of the great Roman architects. What makes it the more remarkable, and indeed without parallel in history, is that there already existed another method of architecture in full and complete maturity, for Gothic architecture had reached the very limit of technical skill—witness King's College Chapel alone. Yet men were prepared to turn their back on this traditional art, they were learning to welcome the new method, to repudiate their familiar language, as no longer adequate to their needs. For the first time we strike the characteristic note of modern art, its intense subjectivity, its deliberate consciousness. This momentous change in architecture did not result from the craftsman's instinctive habit of refining on the past, but from a change in the direction of intelligence, from a certain revulsion in ideas, not from the action and re-action of craftsmanship.

For changes in architecture come about in one of two ways. When a method (or style, to use a doubtful term) is fairly established as traditional, the actual manipulation of materials by workmen and the introduction of new materials, lead to the extension and modification of the style itself, as, for instance, the growth of Perpendicular Gothic out of Decorated. The development comes from within and proceeds more or less unconsciously.

But there is another source of change in architecture. In the course of ages the seeds of change are slowly at work, till there results some great upheaval of ideas which dislodges mankind from its mental anchorage. The old idioms seem meaningless, the familiar formula barren, and then comes that tentative effort after a new expression, which will gradually expand and consolidate into a permanent art. A new factor will have taken its place in human intelligence, which has to be recognised, however much our sympathies may lie with the art it has replaced. Such a change occurred at the Renaissance.

Since the fighting days of the dark ages, civilisation had steadily advanced. Men were rich, intelligent, learned, and the keener and more active minds had long since shown impatience of mediæval standards and idioms. There was but one direction in which this enterprise could find its natural outlet, and this was scholarship. Latin was the familiar language, scholars naturally turned to the country of its birth, and so from the study of the literature of Rome they came to the study of its art, and that art was adopted with enthusiasm as the only fit expression of Humanism, that new motive in thought and morals which the Renaissance won back for mankind. In this regard Alberti is typical of the Earlier Renaissance, a man of noble family and brilliant personal qualities; he can have found little to attract him in the professional side of architecture. His reward lay in his keen enjoyment of the art, in the occasion that it gave him for the exercise of his own fastidious scholarship. Thus, the peculiarity of the art of the Renaissance is that it was much more than a mere change of technique. It was the result and the expression of a new order of ideas which had been slowly growing for generations until it became articulate in art; something altogether greater than the small ephemeral fashions which are all that the nineteenth century has to show by way of a Renaissance.

Now, how did the English builders regard this far-reaching movement? I think it is quite plain that in the first instance, and, indeed, for several generations, they did not in the least understand it. In the first place, they themselves were engrained in the Gothic tradition, trained exclusively in its method of construction, and unfamiliar with any architecture but that of their own country, one might almost say of their own county. And, in the second place, they were introduced to this new art by amateurs. Merchants and scholars travelled in Italy and brought back astounding stories of its magnificent palaces. Soldiers and ambassadors, such as Lord Henry Marney, Lord Sandys of the Vyne, or Sir Richard Weston of Sutton Place, able and observant men, saw and appreciated the wide significance of the new movement abroad; and the king himself and Wolsey set the fashion by importing Italian artists for the decoration of their palaces. All the inspiration came from the court, and the wealthier upper classes; and the English builder, probably somewhat against his will, had to set to work to master the strange new fashion.

The only acquaintance with it, as amongst Englishmen, was possessed by amateurs, and the workmen at first had to follow their instructions with such help as they could get from the work actually executed by Italian craftsmen in this country, and it is to be borne in mind that, in actual fact, not many Italians were over here, and that the majority of them with the exception of such men as Torregiano, Rovezzano, and the Majani, were quite inferior men. The results were the most ridiculous blunders in grammar, for the Englishmen endeavoured to make some rudimentary acquaintance with the orders by way of ornament, but planned and constructed their houses according to their own tradition. As the sixteenth century went on, and the first Italian influence disappeared, their workmanship fell off, but their knowledge of the orders grew. Students, such as John Shute, with some architectural training, were sent out by noble patrons to make systematic study of Italian architecture; and the German and Flemish workmen who succeeded the Italians brought with them an abundance of pattern books; so that the business of decorating houses with fatuous ornament proceeded apace. I have mentioned elsewhere that singular instance at Shaw House, near Newbury, a building which I think characteristic of the state of mind of the Englishman in the time of Elizabeth. Here the owner had himself built a good house of brick and stone on the ordinary Elizabethan plan, but he then adorned it with inscriptions in Greek and Latin, I cannot help thinking, from their wording, with some little vanity in his own superior scholarship and knowledge of Italian art. Yet, in fact, the man was barely within the fringe of his subject. Correct details and Latin and Greek inscriptions were not of the essence of the Italian Renaissance, and it required a finer brain and closer training than was possessed by either amateur or builder of the sixteenth century to see the meaning of the great change that had taken place in Italian, and through Italian, in European, art.

Yet even in far-away England, the air, if one may say so, was instinct with its influence. The horizontality of Elizabethan architecture was itself a dim reflection of the great recovery of the Italian Renaissance; and the day was fast approaching when an Englishman of genius would see his way through all these troubled efforts, and grasp the principle, the basis of idea, that underlay this fundamental change in architecture.

Let us consider for a moment what that principle was.

In spite of the researches of such men as De Geymuller, our younger students are rather apt to consider the architecture of the Italian Renaissance as an affair of detail. Their attention is arrested by its exquisite carving, its arabesques and other details, which form such a tempting subject for illustration. Yet all this detail might go, and the value of the work of the great Italian architects remain untouched. For the basis of their work, and it is this which gives it permanent value, lay in construction: their real accomplishment lay, not in ornament, but in their avoidance of it, and in their past-mastership of proportion and of the intellectual problems of architecture. They studied to some purpose the remains of the stupendous architecture of Rome. Not only did they extend, to a point as yet undreamt of since the days of the Empire, the use of domes and simple vaulting, but they recovered the use of the lintel in combination with the arch. They threw off the unreasonable intricacy of detail with which later mediævalism had encumbered architecture, and brought back the art to its abstract basis in construction, that is to say, to the simplest and most direct methods of building, the lintel for crossing narrow spaces and the arch for wide ones (I speak, of course, without regard to steel and iron construction, at that time practically undreamt of), flat ceilings, domes, or the simplest forms of vaulting, for covering in their areas.

The great recovery that the Italians made from the remains of Roman architecture was this use of the lintel, and the arch in construction, and the use of domes and simple vaulting. A dull man might have recovered its detail, but only the genius of Brunelleschi or Peruzzi could have disentangled these constructional ideas, simple as they seem to us now, and showed how they could be applied easily and naturally to every case, as an elastic method of construction, not merely as an exercise in scholastic canons of design. Given, then, a certain method of construction, in good architecture, the design in all its multifarious parts must follow it. To the arch the Renaissance added the lintel; and it is in the play upon these abstract motives that the real significance of Renaissance architecture lies.

Now, the first Englishman who really grasped this fact was Inigo Jones; and it is for this reason that his work is so profoundly interesting to us, and so completely differentiated from the work of his predecessors. At length there had appeared a man who understood architecture as the Italians understood it; who brushed on one side all the detail and ornament which had seemed to the Elizabethan and Jacobean designers the whole essence of the art, and had gone straight for the heart of the matter; realising that, after all, architecture is simple construction, ennobled and idealised by the working upon it of a powerful brain and highly-trained imagination; and that its strength lies in its own abstract qualities, fine proportion, bold distribution of masses, extreme reticence and simplicity of ornament. He saw (and few had seen it in England since the days of early Gothic) that architecture is not ornament, that ornament, indeed, is only one, perhaps a subordinate one, of the many weapons which architecture has in her armoury. For the first time after a hundred years of blind experiment, this country possessed a real architecture, a complete and flexible language. Instead of a set of quotations from a foreign tongue, it possessed at length an organic style.

I need not dwell at any length on the brilliant ability with which Inigo Jones used this style. His exact and fastidious refinement is familiar to all students.

Perhaps we are not all so familiar with the masterful freedom of his designs. It has been customary to insist on the greater versatility of Wren as compared with Inigo Jones, and a writer in the *Times* once attempted to make some absurd distinction between Jones and Wren, treating Jones as an Italian, and Wren as the first English architect proper. The writer in the *Times* had the usual knowledge of amateur critics; but those who have studied

the work of Inigo Jones and Wren know, in the first place, that Wren could never have started where he did if Inigo Jones had not preceded him; and, in the second place, that it is a complete mistake to identify the work of Jones with that pedantic version of Palladianism which the eighteenth-century architects set up as his particular manner. That Jones did adopt Palladio's architecture as the last word of the Italian Renaissance is, of course, undeniable; the point to be realised is that, whatever his imitators may have done, Inigo Jones himself worked with all the freedom of genius, a freedom founded on the most intimate mastery of the actual technique of his art. In this regard I think the distinction between Jones and Wren has been very much exaggerated, and Wren followed the lines laid down by Jones far more closely than has been generally supposed. The decadence began with the eighteenth century, with the men who succeeded Wren. Where Wren designed, these men copied, and they copied the least attractive features of Inigo Jones and Palladio. The pedantic conception of this man of genius which exists in the amateur mind is really derived from Kent's publications and eighteenth century copies of his work.

I do not propose to follow further the course of English Renaissance architecture. The eighteenth century architects allowed their art to be collared—if I may be permitted the phrase—first by amateurs and afterwards by men of letters. The strength of the old tradition kept them within some reasonable limit—at least, as late as the early part of this century. But that romantic element of literature, which had made its first incursion in the days of Horace Walpole, has encroached on architecture with disastrous rapidity and power in this century; so much so that, a generation back, it almost seemed as if the last trace of our fine traditional Classic would disappear under the preachments of men with no exact knowledge of architecture, who approached the subject from a standpoint entirely out of relation to the art itself. It would have been a curious result if that great development of architecture which owed its first origin to scholarship should have suffered its final extinction at the hands of the literary amateur.

To put together the results of this very general survey, I would suggest the following conclusions as the teaching of history: (1) that the Italian Renaissance itself was the necessary result of far-reaching causes; (2) that our English Renaissance in its kind and degree was a part of this movement, and is not therefore to be dismissed as a mere change of expression in architecture, but must be accepted as part of an inevitable development, precluding a return to the motives and ideas that lay at the back of mediæval art; (3) that in architecture the real work of the great Italian masters was to rediscover, almost to recreate, new methods of construction and proportion; (4) that the fact was not realised by the Elizabethan builders, who could not see the wood for the trees, and that actually it took about 100 years of experiment to produce the man who could see beyond this detail, and establish order and logic in the tangled maze of English architecture; (5) lastly, and as a corollary to this, that the mere fact of his having done so, and the circumstances of the case, have brought about a permanent change in the work and position of the modern architect, to which I will call your attention later.

Now, how do we stand at this moment in regard to the theory of architecture? I do not mean abstract theory as to its philosophical basis, but our own attitude to the art. What are the sources to which we look for inspiration? What are the ideals at which we aim in actual design? I fear that the answer to this question can hardly be satisfactory.

We are, here at the end of the nineteenth century, in a condition of greater uncertainty, and more complete absence of conviction than, I should say, at any previous period of history. You have merely to look back upon the last 100 years. We began the century with the remains of the classical tradition, but Adam had already "improved" it, as he thought: Stuart and Revett had done their work, and the Greek fashion was well in the ascendant. Then came Pugin, ardent, fanatical, full of energy and narrow ideas, a very iconoclast in regard to the old tradition; and after him Ruskin, who thought he had found the key to architecture in his personal preferences, and the morality of Exeter Hall. Then came the rush for Gothic, Early English, Early French, Early Italian, with a vehemence that threatened to sweep the board clear of everything but a heterogeneous collection of details from every country. Every man has been for himself, and meantime architecture has gone to the wall.

The serious study of architecture, not only as an art, but also as an expression of the intelligence which is not arbitrary, but determined by certain inevitable causes, has almost dropped out of sight, and I suppose that, in practice, the very worst work that has ever been done in England has been done in the last fifty years. I need hardly add that a few men of powerful and original mind have done admirable work, but the average of architecture has been left untouched, and it is by the average level that the state of architecture has to be gauged. I do not think that we can look back with pride on the artistic attainments of the nineteenth century, judged from any standpoint, and it appears likely that we shall enter on the twentieth century without having hit upon any certain way through this quagmire of modern architecture.

It is here that the study of the past must help us. I have elsewhere endeavoured to trace the stages through which the function of the modern architect has developed. The days of the craftsman working independently, yet in unconscious unison, ceased, when the choice of styles arose. He tasted of the tree of knowledge, and henceforth to his knowledge of his craft had to be added the responsibility of conscious judgment, if he was to undertake, I will not say architecture, as it might be thought to beg the question, but building of any sort. Because, in any building nowadays, a man has to use one method of expression in preference to another, and implicitly in this there is raised the whole question of selection. Now, this responsibility proved too much for the simple craftsman, as you may see from the blunders in design which abound in more ambitious Jacobean works; and it was only a question of time how soon there should arise the man who had sufficient training and intellectual capacity to enable him to discriminate between good and bad, to enable him to grasp the logical coherence in expression which is an essential element of architecture. As soon as such a man arose, the matter was settled for good or bad. The architect ceased to be a craftsman in the technical sense, and what might be lost in craftsmanship was assuredly gained in architecture. I think, therefore, that this critical function of an architect, this detachment from the actual details of craftsmanship, which chafes the enthusiasm of some of by no means the least gifted of our younger men, is of the very essence of his work. The more of craftsmanship he has the better; but a man may be a very good architect without being a very good craftsman—I mean a good craftsman in the sense of being able to carve his own woodwork and model his own ceilings.

*His* craftsmanship must be of a wider range. It must embrace full knowledge of the past; it it must rest on a constant habit of analysis of the best methods of expression in building, and a keenly critical insight into the abstract qualities of architecture, mass, balance, rhythm, and proportion. An architect, to my mind, should be like a fastidious man of letters, he should not be content to express his purpose anyhow, he should be anxious to find the exact inevitable phrase. It is in this sense, I think, that an architect should be an artist of the highest order, and this is the position that has, in fact, been forced upon him since the days of the Renaissance. Perhaps this reflection may be some consolation to those who would reluctantly abandon the idea that in craftsmanship lies the future of architecture.

Nor, again, is this ideal less exacting than the other. To attain to this faculty of reasonable judgment it is clear that a man must possess knowledge of what has actually been done in architecture—the more the better, provided he is not over-burdened by it; and this knowledge is not mere student's learning, but means a practical knowledge of buildings gained by careful analysis and measurements and by exact observations of materials and local circumstance. A lifetime of constant study is not too much for such a task.

I would suggest to you, therefore, to those of you, that is, who are now beginning your career, that there is no short cut to architecture through pattern books, or even through the pleasant paths of detail craftsmanship; but that, nowadays at any rate, you must have knowledge, and that now, as always in the history of architecture, you must seek that knowledge not only in books, but also in the builder's yard and on the scaffolding of buildings.

I have still one more point to bring before you. Perhaps in this paper I may seem to you to have insisted too much on knowledge, too little on imagination, and the criticism has been made on some remarks of mine elsewhere. In the first place, I would point out that we seem to be face to face with some dangerous developments of originality, or rather eccentricity. To judge by the majority of our buildings, it appears to be thought that "knowledge hampers imagination," as it was put by the eminent Capability Brown. Certainly the results are a very nightmare of architecture. Now there is only one antidote to this sort of originality, and it is knowledge. I fancy that some of the more accomplished of our original designers would be rather surprised to find that the flattest of their ogees, the boldest of their amazing proportions have been anticipated, not only in Italy, but even in England. Even a cursory knowledge of the work of such a man as Baldassare Peruzzi would show them that profound knowledge is not incompatible with the most complete freedom in design; and further, that the most daring imagination can co-exist with the most trivial detail. You may recollect the indignation of the old Sieur de Chambray at the pretensions of the men of his time, who thought that by turning a capital upside down, or something of the sort, they had invented a new architecture, "as if the Pantheon" (I quote the Sieur de Chambray) "that same stupendous and incomparable structure, were not the invention of the architect who built it, because he has vary'd nothing from the Corinthian ordnance, of which it is entirely composed."

In the second place, and this is the gist of all that I have said, this knowledge is not an end, but a means. For an architect does not study in order to reproduce what other men have said once and for all, but to perfect his own mastery of expression; and just as a poet does not invent a jargon of his own or write in the language of Chaucer, but takes the current language of his time, and compels it to his purpose, so an architect would not waste his time in a vain ambition of a new style, or a futile copy of an old one, but would master the best in all the architecture of his country, and find thereby an ample language for his own individuality. It is not styles, therefore, that we are concerned with, but style, that indefinite quality of all good architecture, whether Greek or Roman, Gothic or Renaissance; indefinable, and ever varying, because it varies with the individuality of the artist, because it depends on the faculty that the man possesses of giving the simplest and yet the most complete expression of all his purpose.

It is here that knowledge must come in, as the groundwork of good architecture. We want to know, as part of our training in our art, how other men in the past have solved the difficulties that confront us now; and it is only by this long laborious study that we can learn to discriminate between good and bad, and to free our own method of expression from what is trivial and irrelevant. It is this way, I think, and not along the pleasant paths of the amateur, that there lies the best chance of the architecture of the future.

---

The Chairman, in opening the discussion, said they had heard an able and interesting paper, from a gentleman who had made the subject specially his own. Many of them knew Mr. Blomfield's book on the Renaissance as a very useful and interesting one. The key-note of the address that evening seemed to be that a true, allround knowledge of architecture should be at the bottom of all their studies, as against the idea of mere style architecture, or mere craftsmanship that some gentlemen wanted architects to study almost alone. The paper ought to be discussed freely, and there were many points in it which would no doubt be taken up.

Mr. Leonard Stokes, in proposing a vote of thanks to Mr. Blomfield, said that he agreed with "all Mr. Blomfield had said, especially—most things." As the lecturer had said, without knowledge they would do nothing worth doing, and the men who seemed to think that without knowledge they would be original were a curse to our architectural generation; they

floundered about in their work, and did all sorts of things that were very novel, but generally very ugly. If these men knew a little more they would do less, and it would be a great deal better. Mr. Blomfield had not altogether condemned the idea of learning the crafts, but he had pointed out that craftsmanship was not everything. The architect's first craft is his own craft, and there were certain subsidiary crafts which were very useful to an architect if he had time to master them. An architect, however, could get a general knowledge of these crafts if there was anything in him without being a craftsman pure and simple, and he really ought to get to know more about joinery and ironmongery, for instance, than even the joiner and smith could, for he was able to grasp the principle of their work, as Inigo Jones did, and to observe and reflect; whereas the joiner and smith frequently did things in a mechanical and onesided way. An architect ought not to confine himself simply to merely directing matters; he should have, as Mr. Blomfield said, a much wider scope. As to Mr. Blomfield's remarks to the effect that architecture was not merely ornament, they might think that was obvious; but it was not. So many architects—outside that room—seemed to think that if they knew a little about detail they need not bother themselves about the general principles of a design. They sketched little bits of detail here and there, and waited for an opportunity to ram them in somewhere; but if they could but grasp a few principles, as Mr. Blomfield had said, they would save themselves many mistakes. It was the same with architecture generally. If they were to write out Mr. Blomfield's paragraph about ornament *v.* architecture and hang it in their bedrooms they would not forget it, and then they would not be so likely to use ornament as architecture. He had made these remarks as a mere Goth, who did an occasional Renaissance building, but he had been greatly interested in, and instructed by, Mr. Blomfield's very able paper.

Mr. L. A. Shuffrey having seconded the vote of thanks,

Mr. A. T. Bolton said that their thanks were due to Mr. Blomfield not only for his interesting paper, but also for the drawings he had exhibited. With all their picturesqueness they had an architectural character showing the points of the construction. The most valuable part of the paper to present-day students was that dealing with craftsmanship, and it would be especially fortunate if it could reach some of those who devoting their whole energies to architecture in the highest sense of the term, were yet, in the opinion of a good many architects, in danger of getting on to the wrong track. There was rather a good illustration of the lecturer's remarks in the case of Inigo Jones' church, St. Paul's, Covent Garden. He felt that the more that building was seen the more one was impressed by the wonderful power of the design. That could not be due to craftsmanship, because, unfortunately, the building had been burnt and rebuilt so often that little or none of Inigo Jones' actual work in brick and mortar was left; but for all that the power of the design and the interest of the building remained—made it stand out from other buildings, and made it worth studying. Students of architecture could be too much given to pessimism at the present time; they spoke of "this age of machinery," and contrasted it with the days when, as they thought, every mason loved the particular stone he worked upon, and marked it with his own individuality. That was not exactly the case, though even Viollet-le-Duc, in his "Habitations" imagined that the Greek workman knew his own capital in a completed building, and thus was led to do excellent workmanship. It was rather a revelation in that connexion to know that the buildings on the Acropolis at Athens were polished down by slave labour, as could be seen on the Propylæa, for instance, in the parts left incomplete, a one-sixteenth remaining to be rubbed off. Facts such as these went a long way to diminish the importance of the craftsmanship idea. Mr. Aston Webb had pointed out the same thing in regard to the Banqueting Hall, Whitehall. That unrivalled piece of Renaissance architecture had been very much pulled about, particularly by Soane, and it was doubtful if very much of the surface of the building, as now existing, was of Jones' work at all; but, for all that, it remained one of the finest designs we have. It did not follow that an age of machinery was altogether fatal to architectural design, though naturally we all wanted individual work. If there were the right idea in a building it made it architecture, and machinery would have to be directed towards producing that idea. In the design of a machine-made door, for instance, there could be an idea at the back of the thing, some arrangement of the panels, some relation of style and panel, &c., that constituted the design—just as there was an idea in the Pantheon, which, though there were critics who said it was nothing but a huge cockpit, was, in the opinion of architects, worth going to Rome to see. In that case a circular-domed room of its own width in height, and provided with a single source of light, produces a wonderful effect, the surface treatment of the interior is a secondary consideration. It would seem that even stock sizes were not fatal to architecture, because it is asserted that in Byzantine times the quarries supplied stock columns and these form so important a feature in their interiors that they must have influenced the general design. Mr. Blomfield had not referred to one defect of the Anglo-Classic school, which had not been very successful in developing the ordinary common house—either the small country house or the town villa; before, therefore, we completely condemn the architecture at the very end of the eighteenth together with that of the nineteenth century, credit must be given for the wonderful development at the present time of the smaller houses. The Anglo-Classic school could produce a fine thing in the way of a large house, but it was not much help in a small one. All "Vitruvius Britannicus," from the first volume to the seventh, would be found to throw very little light on that subject. We could now afford to smile at the porticoed country house or the rustic Italian, Gothic, Elizabethan, Palladian, or other villa which had been the outcome of their early efforts, because we are looking back on the subject through the eyes of Mr. Nesfield and Mr. Norman Shaw, who had turned our attention to a class of work which had hardly been attempted since Wren's time. Something of the same kind had happened in church architecture. Pugin was not wholly wrong. Admirable as some of the Classic churches of Wren's school were, they would not, it would be agreed, fit in with the ideas of the present day, and those ideas, held by the clergy and by the people who used the churches, must in reasonable architecture be taken into consideration. Their ideals were to some extent historical and were illustrated in past architecture, some of which was of so glorious a character as to have finally entered into the consciousness of the nation, moulding their ideas and sentiments as to the religious characteristics of a building. This was a point to be carefully taken into consideration. He did not know if, supposing they reverted to the work of the Anglo-Classic school, they would get far in church architecture. As a final point, he did not think that the progressive character of the architecture of the Renaissance had ever been sufficiently dwelt upon. People were inclined to say, "Architecture fell into a state of decadence," but he did not think that was really true. If they were to discard the abominable detail of the last periods, rococco, barocco, or whatever they liked to call them, they would find that the general idea of some of the buildings was exceedingly good, and most of them would be found interesting. Such a continuous progress could be traced, as in the attempted development of the circular and oval planning of interiors. In Italian churches, to take another line of thought, the dome had been largely employed; even the village church had a dome. That was a style of architecture which had not been carried out in England. We had not taken kindly to the dome, though we have two or three splendid examples of its use. In Italy, however, they would see the whole development worked out whether in use of the dome by itself, or in the combination of the dome with the traditional aisle and nave plan; or, again, in the form best described as the 5-dome plan.

Mr. A. H. Hart said he was glad that Mr. Blomfield had specially referred to the study of old work. None of them would regret, he felt sure, time given to the study of old work, and he was certain that that study would not hamper them in their designs. The architect most familiar with old work was most likely to be original in his own. Old work had to be studied in the right way, of course, and as to that there were a great many different views. It was not sufficient to study little bits; the whole work must be studied, and one must try and grasp the principles on which the old masters worked.

Mr. G. J. T. Reavell said that the paper was one of the few he had heard in that room which contained original thought. As to general principles, he felt he had got a few from Mr. Blomfield. It was very hard to get hold of general principles, and most students had to find them out for themselves; an architectural teaching did not appear to include that.

Mr. C. H. Brodie said it was interesting to reflect that while such a paper was being read at a more or less important meeting in the Metropolis, there were several curious works going on in London. First, take the case of St. Paul's, which was acknowledged to be a masterpiece of architecture as architecture, and which a set of craftsmen were practically spoiling. What he wanted to know was, by what right did any portion of the British people call in an artist, however eminent (and no one wished to say a word against any man of genius as such), to spoil a magnificent work of architecture? Then take the case of Waterloo Bridge—a beautiful bridge which was under the control of a certain authority. On that bridge used to be a fine set of lamp standards, which were eminently suitable in the position in which they were placed. Some of them had been removed and no doubt put in a lumber-yard, and in their place were now to be seen little sticks of iron which were not at all suitable. Then there was another bridge, which was shortly to be built. A bridge crossing such a river as the Thames, in such a city as London, should, above and beyond most things, be a work of architecture—not only a means of crossing from one side to another. But where was the architect of the proposed bridge, and what was his name? It seemed extraordinary that the design of such a work should be left entirely to an engineer, and it was remarkable that a body of architects and artists, most of whom knew what they were talking about, should protest in vain against the work being left entirely in the hands of a craftsman—for that was what, after all, an engineer was. In this case the engineer had to design a bridge to safely carry certain loads; he went beyond that, and had put on certain ornament which was mis-called architecture. He (the speaker) wished that some of Mr. Blomfield's principles could be driven into those people who have the control of public buildings, &c.

Mr. H. P. G. Maule said that the people who wanted general architectural principles driven into them were the public, who, because they paid, thought they should have just what they wanted. The general public who went to St. Paul's admired what was being done and thought it charming, and that section of the public who knew better had no power at all.

Mr. Matt Garbutt said he had been rather amused with the talk about principles. He had never seen much in the way of principles set forth clearly; and, perhaps, somebody might publish a sixpenny book showing what those general principles are. As to the work at St. Paul's, he was afraid that there were very few architects who, had they been invited, would have been able to carry out the work, for very few architects had had sufficient training to make good colourists of them. People had a not altogether groundless idea that the architect confined himself, almost, to designs in black and white and, consequently, they went to some one who had had a training in colour. As to the unsatisfactory design for Vauxhall Bridge, he had not yet heard that the architects had sent in a sketch of a bridge which would be possible. It was always easy to criticise. The engineer of the bridge had designed what would be a satisfactory bridge in its structural aspect. Would it not be well for architects to design a bridge of their own and put it in competition with the design of the engineer?

The Chairman, in putting the vote of thanks to the meeting, said that he felt there would have been discussion on the hopeless state in which Mr. Blomfield seemed to think the architecture of the present day is. He was hoping to hear some one say that there was a glimmer of hope somewhere, but no one had done so. And yet, one had a hope that amidst all the architectural chaos of to-day, in an enlightened period when there was so much thought and energy in the nation similar in some respects to the great energy of mind shown in the fourteenth, fifteenth, and early sixteenth centuries, order would result. When Brunelleschi arose and brought order out of

chaos, he achieved that order by going back to the fountain head—the pure Greek and Roman work—and made that the basis—with great success, judging from the wonderful churches he designed. To-day one might hope for good results by going back to the same source and by building upon the experience of past ages, even on the much-belied Gothic. Surely originality was to be got in the end by the study of the best works of the past. As to St. Paul's, he hoped that the work of destruction now going on would be put an end to. It was quite true that the bulk of the public admired what was being done in the Cathedral, but recently he heard much unanimity of educated opinion as to the waste—not of money alone, but of good material misused because much of the work could not be seen, and much that could be seen was destructive to the main architectural effect. When the artist could tell any one that the object of decorating a corbel "is to suppress those hideous things as much as possible,"* there could be but little sympathy with the architecture on the part of that artist. There were one or two sentences in Mr. Blomfield's paper which ought to be specially considered. One that particularly struck him was: "Nowadays, at any rate, you must have knowledge, and that now, as always in the history of architecture, you must seek that knowledge not only in books, but also in the builder's yard and on the scaffolding of buildings." Again: "It is not styles that we are concerned with, but style," &c. Those two sentences seemed to him to be the keynote of the whole matter.

The vote of thanks having been put to the meeting and carried unanimously,

Mr. Blomfield, in reply, said that Mr. Stokes had put in a nut-shell what he (the speaker) had said, viz.: that the architect's craft is his own craft. It was very well for an architect to be able to carve a frieze, &c., but that was not the essence of his business. The essence of the business was that an architect's mind should be at the back of everything, and that he should bring together and control all the subsidiary parts of the whole. His was the master mind of the whole matter; and it was the work of a lifetime to become master of the crafts in this way—master of the relation of the crafts to each other. Mr. Stokes had referred to himself as a Gothic architect, but he had also done some very good Renaissance work. What Mr. Brodie had said as to the deplorable state of public opinion on architectural matters was perfectly true, but he (the speaker) did not know how to deal with the British public. What we had to do was to deal with ourselves and try and get some reasonable conception of a standard of good work and some kind of uniformity in our ideal. He and they could mention a dozen men whose work was eminently interesting, and whose designs were on very different lines; and yet at bottom there was the same intention. Each of those men tried to get the same quality, though they expressed themselves in different ways. That was where the question of principle came in. He quite agreed with Mr. Garbutt as to principles. It was rubbish to talk about principles in the abstract. What he meant by principles was, for instance, that when one had to design a house, he should not set to work at one little corner of it, and endeavour to evade the difficulty by recourse to his sketch-book; but should face the whole problem squarely—should try to get some idea of the general drift of the thing, and should set to work with a general conception of the whole. What one meant by working on a principle was beginning with a general intellectual grasp of what one had to do. He did not mean that there was a set of principles. Any given problem of design had its own principle in it, and that was what had to be found out. With most that Mr. Bolton had said, in his interesting remarks, he agreed. Mr. Bolton misunderstood him a little, however, as to Anglo-Classic work. A great many things which looked poor in the "Vitruvius Britannicus" were, when one came to see them, dignified and masculine architecture. But, apart from that, there was a great deal of fine eighteenth-century work which was quite small in scale, such as architects have to do to-day—work of from 500*l.* to 5,000*l.* There were Groombridge and the house at Chichester, and a great number of others all over England. Those were the models to master—not to reproduce them, but to get them into one's inner consciousness; then we should design good buildings. As to the churches, that raised a large question. His impression was that a really satisfactory modern church ought to be designed on very much larger lines than the eighteenth-century churches. Some of them were exceedingly fine, but he did not think they would be at all adequate to modern sentiment and thought. He quite agreed with what Mr. Bolton had said as to the proportion of the Italian churches. The same thought had occurred to him when he was in Rome studying some late sixteenth and seventeenth century churches. They were full of trumpery ornaments—meretricious stuff—but divested of that the proportion was fine and the design of the construction exceedingly able. As Mr. Bolton had said, there was a great deal to be learnt in what it had been the fashion to call "decadent" architecture. These buildings were not decadent; on the contrary, they were very vigorous. Some were more vulgar than others, but it was begging the question to label them decadent. We had in all these things to get rid of a lot of romanticism and false sentiment, and consider architecture on its merits. What Mr. Bolton had said about St. Paul's, Covent Garden, and the buildings on the Acropolis, showed that a very fine effect could be got in a building quite apart from conditions of craftsmanship, and proved that architecture is an intellectual affair—that was to say, that it is imagination and originality directed by the intellect. If they got that into their minds, they would realise what a large and serious problem they had undertaken in becoming architects. They should strive to find the intellectual solution of the problems of architecture, and if their solution was satisfactory, it would stand any amount of bad decoration, injuries wrought by time, &c. As to originality, a man either had it or not; he could not make his mind original any more than he could create himself an imagination; but what he could do was to train himself in knowledge between good and bad, and educate himself to use his mind—in a word, to think. His object that evening had been to put before them this essential function of an architect; and he thought they would be going on the wrong line if they hoped to arrive at architecture through simple craftsmanship. The only way was to study and observe incessantly, and always with the idea of mastering for themselves a method of expression of their own.

The Chairman announced that the next meeting will be held on April 14, when Mr. F. W. Pomeroy will give a lecture on "Modelling as Applied to Architecture," with practical demonstrations.

He also announced that the Soirée will be held on April 21 at St. George's Hall, Langham-place. A ladies' night will be given on April 19. A play has been specially written for the occasion by Messrs. G. B. Carvill and Gervase Bailey; music by Mr. Leonard Butler.

The meeting then terminated.

* See the *Builder* for February 25, page 196.

## THE SURVEYORS' INSTITUTION.

AN ordinary fortnightly meeting of this Institution was held on Monday, in the temporary premises of the Institution, Savoy-street, Victoria Embankment, Mr. Robert Vigers, President, in the chair.

The minutes of the last meeting having been read and confirmed, Colonel G. W. Raikes read a paper entitled "Valuation and Rating in respect of Tithe Rent-charge." As to the origin of tithes, he said that tithes or tenths existed in England so long ago as the times of the Anglo-Saxons, Edgar being the first king to enforce their payment. "They were devoted to the maintenance of the church's fabric, the use of the bishop and of the incumbent, and also to some extent to the feeding of the poor and the entertainment of strangers. The monasteries and other spiritual corporations acquired many advowsons from patrons of churches, and with the licence of the king and the consent of the bishop 'appropriated' the benefices to themselves, and applied the endowments to their own purposes. They undertook the repair of the church's fabric, dispensed charity, and deputed one of their own body to perform the services of the Church in the parishes of which they had become rectors or parsons. This deputy was called a vicarius or vicar; hence the distinction between rectorial or vicarial tithes." The abbots or heads of these monastic houses are said to have frequently lived in princely magnificence, while the vicars upon whom the duties of the Church devolved only received a share of the tithe and a portion of the glebe, denoting that a custom existed in these early times, which is still pretty general, and by no means confined to matters ecclesiastical. The other clauses under this section explain how when Henry VIII. dissolved these monastic or religious houses the "appropriations" were vested in the Crown, and afterwards granted partly to religious foundations and partly to lay rectors or "impropriators."

The author then dealt with the statutory liability of the incumbent to be assessed for poor-rate; the assessment of tithes from 1601 to 1840; the object of the Tithe Act, 1836, and its effect upon incumbents; the effect of the Parochial Assessments Act, 1836, upon incumbents; the practice and method of assessing tithe rent-charge from 1840 to 1858; the Poor Rate Exemption Act; the practice and method of assessing tithe rent-charge after 1858; imposition of new rates since the Tithe Act, 1836; effect of Agricultural Rates Act on tithe-owners; the claims put forward on behalf of incumbents; and the pressure of the present law upon incumbents. In speaking of the claims put forward on behalf of incumbents, the author said that "the tithe-owners do not base their claims for relief in rating on the ground that their commuted tithe has fallen over 30 per cent. in value. They steer clear of any questions of Free Trade and Protection, and doubtless they are most wise to do so. They rely on the palpable injustice of their present assessments entirely on the following grounds:—1. On the practice, which gradually became general, of rating their tithes instead of themselves as inhabitants, as distinctly laid down by the Act 43 of Elizabeth. 2. Because the Tithe Commutation Act, 1836, having fixed the commuted tithe at its gross annual value, it was immediately assessed under the Parochial Assessment Act at very nearly its gross value instead of at one-half or two-thirds as formerly, whereas land was assessed on the rent, which only represented two-thirds or half its value. 3. By the Poor Rate Exemption Act, 1840, which exempts all profits on trade, to the deadly injustice of ratepayers on all descriptions of real property. 4. By the various decisions of the courts disallowing deductions for—(i.) Repairs to chancel; (ii.) Curate's stipends; (iii.) District churches; and (iv.) Personal services or tenants' profits.' 5. By the imposition of new rates. 6. By the Agricultural Rates Act, 1896, since the passing of which, tithe rent-charge (though much reduced in value, but still the parson's share of the land) is left out of the benefit of the Act to bear the full pressure of ever-increasing rates, together with parks, woodlands, and pleasure grounds and gardens attached to houses or cottages."

In the discussion which followed, the following gentlemen took part:—Messrs. E. P. Squarey, A. Buck, J. H. Sabin, H. M. Grellier, E. W. Peterson, and the Rev. Lamplugh.

A vote of thanks having been passed to Colonel Raikes, the meeting terminated.

## INSTITUTE OF SANITARY ENGINEERS

THE annual dinner of the Institute of Sanitary Engineers was held on Thursday evening last week, at the Holborn Restaurant. Mr. R. Reynolds Rowe, the President, was in the chair, and among those present were Dr. Wilkinson, Messrs. J. W. Townsend, W. G. Wells, H. M. Dove, and S. Minty (vice-Presidents); Mr. Jas. Farley (Chairman of Council); and J. Kemsley (Secretary).

Mr. G. Reveirs proposed "The Institute of Sanitary Engineers." He congratulated the members on the success to which the society had attained. They had got rid of their difficulties and were now prospering. There were over 2,000 registered master plumbers and each one ought to avail himself of the advantages of a society like this.

Mr. Reynolds Rowe, in responding, suggested that for the present the examinations should not be too stiff, so as to debar those who were not fully prepared, but they should be progressive. Another suggestion he desired to make was that ladies should be present at the future dinners.

Dr. Wilkinson, in proposing "The Chairman and Members of the Council," said that sanitation was the newest science, but it embraced

almost every science under the sun, and in discussions at the meetings of the society they could all learn something.

Mr. Jas. Farley, in reply, said the present Council had no sympathy whatever with the actions of the promoters. They intended to have all that was good and to take out all that was bad. Their membership was daily increasing. They now numbered 700 members, and their rate of progress was very satisfactory. One of the reforms they proposed would be that the certificate of membership should not solely depend upon subscriptions. They were determined that their members should be men of ability and honesty, and they could not arrive at this result merely by examination, because it frequently happened that those who possessed the most book knowledge were commercial failures. They were also determined that members should do good and honest work.

The dinner was preceded by the ordinary sessional meeting, when Dr. Wilkinson, the Medical Officer of Health for Oldham, read a paper on "The Sewage Treatment at Oldham." He minutely described the plan of the sewage works, and indicated that the method of the sewage treatment was, first, by sedimentation or precipitation in the tanks, and secondly, by the agency of acrobic bacteria in the filters. He was convinced that the key to the proper management of bacteria beds, where there was a large amount of sewage, was a regular and systematic chemical analysis. Long before any indication could be perceived by smell or appearance that the beds are not doing their work properly, a chemical analysis would give the sign that a few days' rest was required, at the expiration of which the bed would return to its normal condition. The problem, and the very expensive problem, of the most efficient, and at the same time most economical, method of the treatment of the sewage of our large and still increasing manufacturing towns was not yet solved. They could consider as proved that the purification of the sewage could be encompassed by chaining the bacilli and keeping them judiciously employed, but whether in septic tanks, in land, or filter-beds, or by some new method not yet discovered, was a matter which only experience, both in failure and success, could teach. Nature has yielded some of her secrets to man, but she has many more undiscovered, one of which was the resolution of the foul and filthy effluent from the congregated dwellings of man into food for man, and flowers which beautify our surroundings.

## DRAWINGS FOR THE ROYAL ACADEMY.

As usual, we shall be glad to forward to the Royal Academy any drawings sent to the office of this journal in time to be photographed for publication (if considered suitable) before sending them in.

The last day for receiving drawings at the Royal Academy is Monday, March 27; and the latest time at which we can receive any to be delivered from this office is *11 a.m. on Saturday the 25th.* Any drawings sent here later than that we cannot take charge of.

The following are the requirements of the Royal Academy in regard to drawings:—

1. That every drawing should be in a gilt frame.

2. That there should be a label affixed to the back of it giving the title of the drawing and the artist's name and address, and the distinguishing number of the drawing (if more than one is sent).

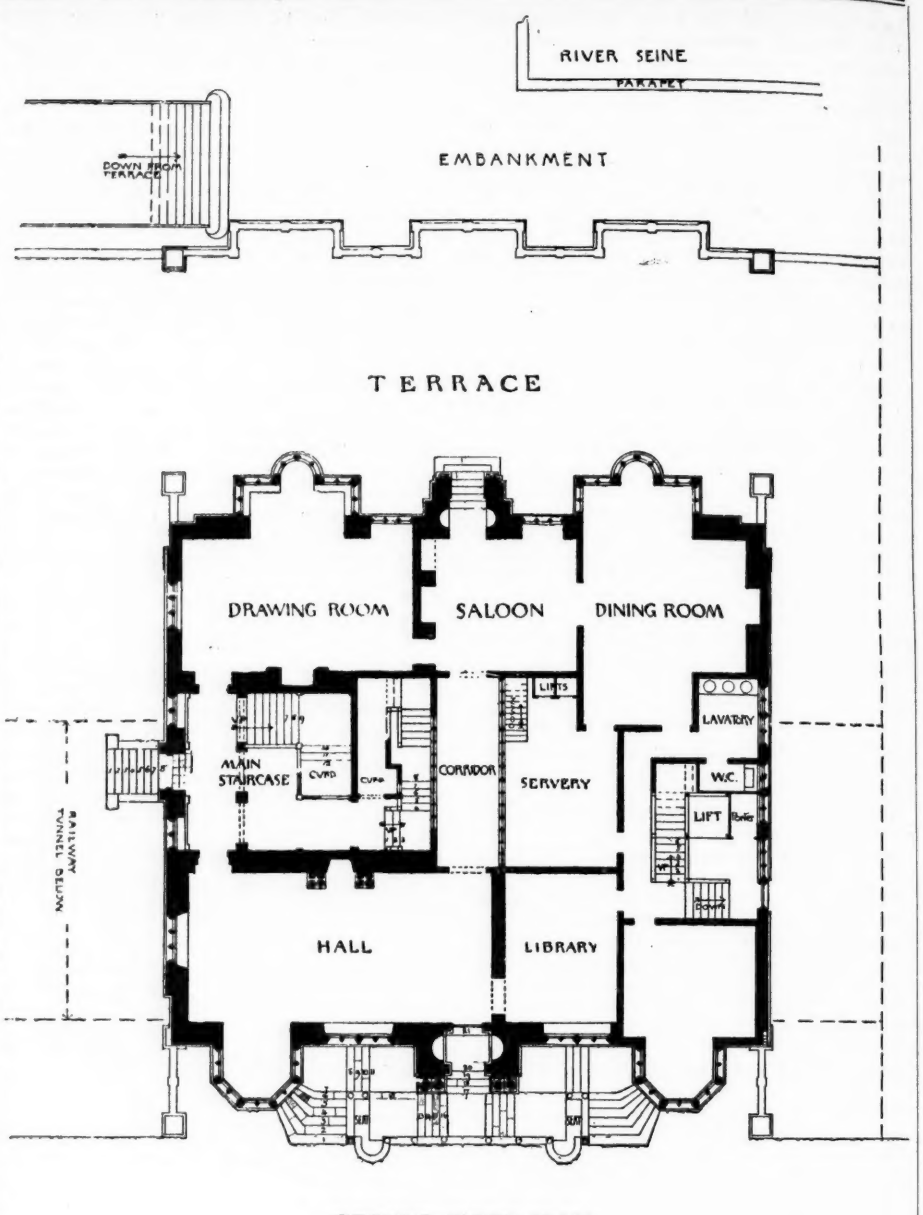
3. That a similar label should be affixed to the frame by a string, so as to hang over in front.

4. That the drawing be accompanied by a letter to the secretary of the Royal Academy containing the same information as on the labels.

We can take charge of no drawings which do not comply with these regulations. *We cannot provide or affix labels where they have been omitted by the sender of the drawing.*

## *COMPETITIONS.*

THE LEEDS NEW MARKET HALL COMPETITION.—The Markets Committee have resolved to apply to the President of the Royal Institute of British Architects, requesting him to nominate three gentlemen, any one of whom the committee might invite to act as assessor.




GROVND FLOOR PLAN.

*English Royal Pavilion for the Paris Exhibition. Plan.*

# Illustrations.

## DESIGNS FOR THE NEW GOVERNMENT OFFICES.

WE give this week the perspective design and ground plan of the two great blocks of proposed Government Offices —that for the War Office, by Mr. W. Young; and that for the Westminster block of offices, by Mr. J. M. Brydon.

Some comments on the designs are made in our first article, but we may add one or two practical particulars here. In regard to the plan of the Westminster block, this, as explained in our leading article, is a plan for the ultimate scheme when the whole of the land between Parliament-street and St. James's Park has been acquired. What it is contemplated to build at present is the right-hand block, which will form additional offices for the Local Government Board; and the upper or northern portion of the remainder of the plan, including half the circular court. This portion will belong to the Education Department.

In the War Office the idea has been to give the Secretary of State for War the central front rooms on the main story (the columned story) of the front, with the Under-Secretary and private secretaries and other higher officials on each side, the secretarial department extending along the front and along part of the Whitehall-place return. The clerks of the same department will be in the rooms below these (the upper rooms of the rusticated portion of the front), and above the main suite of rooms will be the repositories for documents. The Commander-in-Chief is accommodated with the centre portion of the principal front to Whitehall-place, the portion decorated by the order representing his levee-room; above that is the library of the department, and above that the drawing-offices, lighted from the top. The plans of the different floors are at present only in the rough, but this is the main idea.

Special means will be taken for isolating the Intelligence Department, which will occupy the upper portion of the rear block around the triangular court. The corridor here will be shut off by gates at the angles where it joins the cross corridor; and the staircase in the corner of the triangle will be a special staircase for the Intelligence Department, also gated and guarded by an official.

In regard to the design, in addition to the points mentioned in our leading article, we may mention that the architect made a good many sketches for a central feature for the Whitehall façade, but eventually abandoned the idea from a conviction that the façade was not long enough to admit of it, along with the special treatment of the angles which was required in order to mask the irregularity of the site. Mr. Young thinks of modifying the smaller cupolas on the Whitehall-place front, and treating them as square features, in order to give more emphasis to the angle cupolas; and this we think on the whole will be an improvement. The omission of the central feature was decidedly a wise determination; the façade looks much better as it is.

## THE ENGLISH ROYAL PAVILION FOR THE PARIS 1900 EXHIBITION.

THE scheme which has been adopted for the Exhibition of 1900, of arranging all exhibits by classes and not by countries, although possessing certain advantages, is not favourable to

distinct national displays. This consideration has induced the British Royal Commission to devote special attention to the construction and decoration of our Royal Pavilion, which is to stand in the row of National Palaces on the Quai d'Orsay. The work has been placed in the hands of a committee consisting of Major-General Sir Arthur Ellis, K.C.V.O. (Chairman), Sir William Agnew, Sir John Murray Scott, Bart., the President of the Royal Institute of British Architects (Professor G. Aitchison), the Director of the South Kensington Museum (Mr. Purdon Clarke, C.I.E.), Sir Charles Tennant, Mr. Montague Guest, and Colonel Herbert Jekyll, C.M.G. The plan decided on is to reproduce an old English manor house, furnished and fitted throughout with all the requisites and appliances which would be found in a country house of the present day.

The north side of the pavilion is adapted from Kingston House, Bradford-on-Avon, about six miles from Bath. It was built in the time of James I., and is one of the most characteristic examples of the period.

We give a plan and perspective drawing from the designs which have been prepared by the architect, Mr. Edwin L. Lutyens (London).

The building will be constructed with a framework of steel (designed by Sir Benjamin Baker, C.E.) covered with cement, and its erection has been undertaken by Messrs. John Aird & Co. The various rooms will be placed at the disposal of different firms to decorate and furnish, and, from the offers already received, the whole will certainly form a striking display of English taste and manufacture.

Among the firms who have expressed their desire to participate in the decoration and fitting are :—Messrs. J. Thompson & Co., of Peterborough, who have undertaken the great staircase ; Messrs. Warings, Gillows, Collinson & Lock, Bertram & Sons, the Tynecastle Company, Johnston & Appleyard, &c.

The City of Bath has also undertaken the decoration of a room. Sanitary appliances will be provided by Messrs. Doultons, Jennings, and Twyford & Co. Stained glass windows will be executed by Messrs. W. Smith, of London, and Guthrie, Wells, & Co., of Glasgow.

Among those furnishing metal work and fittings are Messrs. Starkie Gardner & Co., Chubb & Sons, Singer & Sons, Needs & Co., and Ames, Lyde, Elsum, & Co.

Messrs. Crossley & Sons provide the carpets, and Messrs. Broadwood are engaged on the construction of a specially decorated piano. The electric passenger and service lifts are to be erected by Messrs. Waygood & Co.

The rooms have been so arranged as to permit the public to circulate through the house in a continuous stream, and make their exit by a second door. The main entrance is by the porch on the south side. This leads into the main hall, about 40 ft. by 20 ft., in which will be placed the magnificent panels of tapestry belonging to Mr. George McCulloch, which were designed by the late Sir E. Burne-Jones and executed by Messrs. Morris & Co. Messrs. Morris & Co. are also to do the stained glass windows of this apartment. Visitors then pass through the dining and reception rooms on the ground floor, ascend the great staircase and, after inspecting the bedrooms, find themselves in the great gallery, 81 ft. by 18 ft. This is to be an adaptation from the Cartoon Gallery at Knole House, Sevenoaks, and it is hoped that it will be possible to exhibit here a loan collection of the finest examples of the eighteenth-century English painters—a school for which at the present moment the Continental nations are most enthusiastic. A china room opens out from the gallery, on the shelves of which will be displayed specimens of the best known English wares. Through this room visitors will pass to the second staircase, which leads to the door of exit.

The pavilion will be accessible at all times to the public, except when in use by the Prince of Wales, the President of the Royal Commission.

The Secretary of the Royal Pavilion Committee is Mr. H. Thomson Lyon, St. Stephen's House, Westminster, to whom all communications should be addressed.

THE GLASGOW ARCHITECTURAL ASSOCIATION AND GREYFRIARS.—The Architectural Association of Glasgow has sent a communication to the Aberdeen Town Council against the proposed removal of Greyfriars Church, and urging the retention and restoration of the building.

## PHŒNIX FIRE-RESISTING PLATES.

A NUMBER of architects and others interested in the construction of fireproof buildings met at Willesden on Wednesday last to witness the behaviour of "Phœnix plates" when subjected to a practical fire test.

These plates have not hitherto been used in this country, but it is stated that they have gained considerable popularity in Holland, where they are used for the construction of ceilings, the walls of corridors, and other interior parts of buildings.

At Willesden a three-roomed building was erected, the two lower rooms being constructed of Phœnix plates covered with plaster, which was said to be of the same composition as the plates, while the third and upper room was mainly of wood. There was nothing between the lower rooms and the upper one except the wooden joists and the plaster-covered ceiling plates.

In one of the lower rooms a fierce fire vomiting tongues of flame of considerable magnitude was obtained by means of sticks of wood dipped in tar, and was maintained for almost exactly fifteen minutes. The fire was then extinguished by means of a hose.

Throughout the test the upper room remained perfectly cool, and several persons, including our representative, who went into this room while the fire directly beneath it was raging most fiercely, remarked the fact that not even the floor betrayed the slightest rise of temperature. The room situated upon one side of the furnace-room also remained cool, but a crack developed in its plaster coat soon after the fire was lighted, and cracks subsequently appeared in other exterior parts of the furnace-room. The walls of this room were double and had an air space between them. It was suggested that the expansive force of this enclosed air under the influence of heat was the cause of the cracking of the exterior plates and plaster, which throughout the test did not become appreciably heated.

When, however, the interior of the furnace-room was examined, after the fire had been extinguished and some of the plaster stripped off the walls, it was found that one or two cracks were visible in the interior plates themselves, even though some laths of wood buried in the plaster and employed to hold the plaster to the walls had not even been scorched.

It is evident from this and other tests that Phœnix plates are non-combustible and extremely bad conductors of heat, and that they may therefore be of great utility for certain purposes in building, if they adapt themselves in other respects to the requirements of the builder ; but we do not consider that it has yet been satisfactorily demonstrated that they would not crack and fall to pieces under the conditions to which they would be subjected in the course of an ordinary house conflagration.

The plates are light in weight, and are said to form as cheap a material for ceiling construction as ordinary lath-and-plaster. It is claimed that two men can fix 1,000 square feet of ceiling-plates in a day. The composition of which the plates are made is, our representative was informed, that mentioned in the English patent, dated November, 1898, of Messrs. Van der Vijgh, which is made by mixing 20 parts of pumice, 10 parts of slag sand, 18 parts of lime, 12 parts of tan, 20 parts of plaster of Paris, and 20 parts of water. This composition is said to be superior to that claimed in the 1896 English patent of the same inventors.

## *ENGINEERING SOCIETIES.*

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—At the meeting on March 16, a paper on the "Purification of Public Water Supplies" was read by Mr. W. N. Twelvetrees, illustrated by a large number of diagrams. Before proceeding to describe in detail the construction of mechanical and other filters, and of plant in which physical and chemical agencies are employed for water purification, Mr. Twelvetrees directed attention to the physical characteristics of water derived from various sources, and mentioned the problems always presented when river water is used for the supply of waterworks. Filtering media of various kinds were next considered, and the conclusions arrived at after exhaustive tests by Dr. Sims-Woodhead, Dr. Cartwright Wood, Dr. Netter, of Paris, and others, were quoted. The result of the investigations in question bears out the statement that in a general way the public safety depends largely upon the watchful care of water engineers and of other scientific officials, and in a lesser degree upon the intrinsic merits of any given filtering medium. After dealing with the question of natural and artificial purification, by percolation and by deposition, the author demonstrated, by the aid of sectional drawings, the actual nature of the process taking place in sand filtration beds. Sand in itself presents no special recommendation as a filtrant; the efficiency of a sand filter does not become established until a gelatinous layer, formed of mud, algæ, and micro-organisms has been formed upon the surface. Incidental reference was made to Hunter's sand-washer, the construction and working of which was made clear by a series of diagrams, illustrating the application of the apparatus in the Leicester Corporation Waterworks, at Swithland. Another type of sand washer, invented by Mr. A. T. Walker, Water Engineer to the Reading Corporation Waterworks, was also described. Leaving ordinary sand filtration, Mr. Twelvetrees proceeded to discuss some modified methods which have been adopted with great success. One of these is known as the Morison-Jewell process, of which the distinctive feature consists in the substitution of a clean film of gelatinous aluminium hydrate for the casually accumulated layer, constituting the chief purifying medium in ordinary filter beds. Another modified mode of sand filtration is one in which polarite, alone or mixed with sand, takes the place of one of the strata of sand. Polarite is the name given to a specially prepared and porous form of magnetic oxide of iron. Water passes freely through as well as around the granules of this substance, within the pores of which polarised oxygen is contained, and which, upon contact with suspended or dissolved substances, produces oxidation. This action is not carried on at the expense of the material itself ; and, further, as polarite, being absolutely rustless, is practically everlasting. Fresh supplies of oxygen are, of course, necessary, and periodical washing is also required. Some diagrams were shown of polarite filters as used at the Hastings Corporation Waterworks, the Reading Corporation Waterworks, and an arrangement of a polarite filter for purifying rain water was exhibited by permission of Mr. Ernest Turner. Methods of purification for hot and cold climates, where sand filtration is often impracticable, were next discussed and illustrated. Amongst filters of this kind may be specially mentioned the "Riddell," the "Torrent," the "Howatson," and the "Wilson" filters. These have all been applied for public purposes, and in installations capable of dealing with from 1,500,000 to 2,600,000 gallons of water per twenty-four hours. Various ingenious contrivances for cleansing are generally used in addition to reverse currents of water. The "Riddell" filter has an arrangement of radial arms, which are moved up and down as well as in a rotary manner, by hydraulic power. In the "Torrent" filter compressed air is employed, and in the "Wilson" apparatus a very ingenious automatic flushing system is adopted. Mr. Twelvetrees next drew attention to the example of waterworks filtration by the Pasteur method, as used at Darjiling. The output is about 250,000 gallons daily, and as the Pasteur filtration employs the only known absolutely germ-proof medium, the installation in question may be regarded as unique. Another mode of water purification is that patented by Anderson in 1889, where water is agitated in revolving drums containing fragments of metallic iron. Some of the iron is dissolved, and as the water passes from the apparatus to settling tanks it is ærated. Oxide of iron thus formed carried down impurities by deposition. Sterilisation by heat at a temperature of 240 deg. Fahr. affords perfect immunity from pathogenic bacteria, and an apparatus known as the Vaillard-Desmaroux Heat Steriliser was described and illustrated. This form of appliance has been adopted for the water supplies of towns in Russia and in Brazil. It should always be borne in mind, however, that the extinction of germs and spores is one matter, and that the removal or oxidation of poison in solution is another and not unimportant problem. Water softening employed for the purification of public water supplies was illustrated by a set of drawings and photographs of the Ashby-de-la-Zouch Waterworks, where the Archbutt-Deeley process is used with great success. Mr. Twelvetrees in conclusion emphasised the desirability of regard-

ing efficiency as the first consideration in every case, and expressed the hope that the line of defence established by water engineers in the interests of public safety might always be furnished with weapons of the most modern and scientific kind.

## *ARCHÆOLOGICAL SOCIETIES.*

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting of this Association was held on the 15th inst., Mr. C. H. Compton, V.P., in the chair. Dr. Brushfield brought for exhibition a curious pipe, from the collection of the late Rev. S. M. Mayhew, having a portrait bowl with the face turned inwards towards the smoker, the stem being very much ornamented. The pipe is of the time of Elizabeth or James I. and was found in London in 1872. Mr. W. A. Donnelly read a paper upon his recent discoveries of prehistoric remains in the Clyde Valley; the vitrified fort, with cup and ring, rock and boulder sculpturings, an ancient hill fort, or brock, and the crannog at Dumbuck, which altogether form a group of archæological discoveries in the Dumbartonshire district of the Clyde Valley, perhaps unequalled in recent times. When the discovery of the vitrified fort was first made known, experts considered the evidence insufficient to establish positively the formation and extent of the structure, but subsequent careful examination by Mr. Donnelly in company with Mr. John Bruce, F.S.A., established the fact that the structure had an inner and outer formation, that on the apex of the hill being 48 ft. in circumference, while the outer vitrified rampart measures 232 ft. in circumference. The Helensburgh Naturalists and Antiquarian Society, at the request of the Society of Antiquaries of Scotland, conducted excavations which have fully revealed the interesting nature of the discovery. This examination, however, only extended so far as to verify the structure but, the Society of Antiquaries of Scotland hope, with the permission and sympathetic co-operation of Mr. Buchanan, the owner of the property, to thoroughly excavate and examine the refuse bed. The form of the fort on the hill of Dumbuie is slightly elliptical, the major axis of the interior measuring 32 ft., and the minor axis 30 ft. The walls are 13 ft. 6 in. thick, dry built of local sandstone. On the inside at the highest they did not measure more than 6 ft. No traces of windows were met with, the only opening being the doorway, which faced the east, and had on each side a small guard chamber sufficiently large to accommodate one person. Several hearths were discovered, and cooking stones, and stone pounders, polished pebbles, whetstones, and oyster shells with signs of ornamentation, one of which contained in the cavities of the design traces of a red pigment. Stone spear heads and one bone arrow-head were found. Amongst the hundreds of tons of material removed and most carefully sifted no trace of metal of any kind, nor of pottery, was discovered. Passing on Mr. Donnelly told the story of his discovery, on July 31, 1898, of the now famous crannog at Dumbuck, which has attracted so much scientific notice of late. The canoe and the ladder which were found at the crannog were the two most important finds in wood, but a quantity of wooden objects have been met with. A striking peculiarity of all the wood used in the construction of the crannog is the fact that, although it possesses its original form and retains even the slightest tool mark, the wood itself is in a condition of pulp. The paper was abundantly illustrated by diagrams and drawings, together with a large collection of objects discovered in the course of the excavations. Dr. Brushfield, in thanking Mr. Donnelly for his valuable paper, said the subject was almost an unknown one to English people. There could be little doubt that the structures and remains belonged to the Neolithic Age, the absence of metal in the discoveries indicated that fact—split bones were found in all examples of this period, and all split bones were done by human agency. Cooking stones similar to those found were met with on Dartmoor, but no bones were found on Dartmoor owing to the action of the peat. The Rev. H. J. D. Astley (hon. secretary), in continuing the discussion, said that, owing to the controversy which had arisen on the subject of the crannog at Dumbuck, he had been led to renew his acquaintance with Dr. Munro's writings, and especially that on the "Lake Dwellings of Europe." On doing so he saw at once two very plain reasons for the learned doctor's recently-assumed attitude on this question—viz., that supposing the Clyde Crannog should be proved to be as Mr. Donnelly and others infer, and Dr. Brushfield admits, to be most probably of the Neolithic Age, it would disprove two of Dr. Munro's most cherished theories (1) that there was an upheaval of the West Coast of Scotland forming what is known as the 25 ft. break corresponding to a depression of the western and southern coasts of England, at some time subsequent to the Roman occupation, and (2) that the idea of pile dwellings, or crannogs, was a later importation of the Celtic peoples into the British Islands. For himself, whilst most heartily congratulating Mr. Donnelly on his ability and energy, he desired at present to preserve an open mind on the subject; the objects found would certainly appear to point to the Neolithic Age, though some of them, especially the so-called "totems" (which Dr. Munro prefers to call "amulets") would, if genuine, revolutionise our ideas of the life and progress of men in that age. The Chairman, Mr. Gould, and others took part in the discussion.

## THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, Lord Welby, Chairman, presiding.

*Loans.*—On the recommendation of the Finance Committee, it was agreed to lend the Clerkenwell Vestry 220*l.* for paving works; the Guardians of Fulham Union 4,050*l.* for purchase of property; the St. Pancras Guardians 5,000*l.* for the erection of chapels; and the Woolwich Local Board 1,000*l.* for paving works.

*Appointment of a Superintending Architect.*—The General Purposes Committee reported as follows:—

"On January 31 last the Council gave authority for an advertisement to be issued inviting applications for the appointment of a Superintending Architect, at a salary of 2,000*l.* a year. We have now to report that in response to the advertisement forty-three applications were received. These applications were in the first instance considered by a sub-committee, who, after having an interview with nine of the candidates, have submitted to us the names of four. We have ourselves seen these four candidates, and having carefully considered their respective qualifications, we now submit to the Council the names of the following—Mr. W. E. Riley and Mr. F. R. Farrow. . . . We are strongly of opinion that Mr. Riley is the best qualified for the appointment. We accordingly recommend—(*a*) That Mr. William Edward Riley be appointed Superintending Architect of metropolitan buildings and Architect to the Council, at a salary of 2,000*l.* a year, upon the following conditions—That his appointment be held during the pleasure of the Council, that he be required to give his whole time to the duties of his office, and be not allowed to take any private business; and any fees received by him, either as a witness or in any other capacity, be paid to the Council, and, further, that on retirement he shall not be entitled and shall not make any claim to any retiring allowance under the Superannuations Act, 1866, and that he will submit to the Council's regulations in respect of the Superannuation and Provident Fund. (*b*) That Mr. William Edward Riley be authorised to take all such steps as have hitherto been taken by the Council's Architect to carry into execution the provisions of Part IX. of the London Building Act, 1894, relating to dangerous structures. (*c*) That the solicitor be instructed to prepare the necessary form of appointment, and that the seal of the Council be affixed thereto when ready."

Mr. Goddard Clarke moved that the recommendation be referred back for further consideration. He did not think that the Committee were justified in making the recommendation.

Mr. Taylor seconded.

Mr. E. White said that the Council ought to have the services of a gentleman who had an intimate knowledge of the Building Act, and who should know how to deal with a highly-qualified class of men, viz., the district surveyors.

Mr. Burns said that if the Council could possibly get a Sir Christopher Wren and a good district surveyor in one person, he would vote for the amendment, but that was not possible in these degenerate days. That being so, it was well to select a man who had general qualifications, and who should be, pre-eminently, a good organiser. There was no doubt that the Architects' Department had drifted to some extent into a state of disorganisation; and a good organiser, more than a district surveyor, was and would be required. Some time ago he thought that the duties of the office ought to be divided, but it was now too late to do so.

Mr. Strong (Vice-Chairman of the Council) said Mr. Riley had had large experience in carrying out architectural work, by the direct employment of labour and by contract. He felt sure that Mr. Riley would be competent to deal with any of the Council's work.

The recommendation of the Committee was adopted, and Mr. Riley, having been called in, returned thanks for his appointment.

*Office Accommodation.*—It was recommended by the Establishment Committee that an estimate of 100,800*l.*, submitted by the Finance Committee for purchasing the freehold of two houses in Cockspur-street for the extension of the Council's office accommodation, should be agreed to.

Sir Arthur Arnold thought that, in connexion with this proposed purchase, there should be some distinct understanding with the Government, who were erecting buildings so close to the present County Hall. In a comparatively short time a thoroughfare was to be cut from Charing-cross to the Mall, and it was very desirable that either the Government should obtain the site of the County Hall or that the Council should do so. Several Government Departments were at present housed a long way from the central buildings, and he suggested that Somerset House would make an ideal place for the County Council. He thought it would be desirable that the representatives of the Council should approach the Government with that object in view, and suggested that they should grant the Council a long lease of Somerset House. The Council at the present time was paying 9,000*l.* a year rent for offices.

Mr. Shaw-Lefevre thought Sir A. Arnold's proposal was quite out of the question, and that it would not be entertained by the Government.

Mr. H. Lawson believed that they could be quite independent of the Government, and select a site on the new street from Holborn to the Strand.

The recommendation of the Committee was agreed to.

*Spitalfields Market.*—The proposal to purchase the freehold and other interests in Spitalfields Market for the sum of 170,000*l.* was held over, in accordance with the Standing Orders, for a week, as the amount exceeded 5,000*l.*

*Rotherhithe Tunnel.*—The proposal to construct a tunnel under the Thames at Rotherhithe at an estimated cost of 2,198,250*l.*, was also postponed for the same reason.

*Tar Paving, &c.*—The Parks and Open Spaces Committee recommended, and it was agreed, that the tender of Messrs. Burt, Boulton, & Haywood, Limited, be accepted for the supply of deal edging at 7s. 6d. per 100 ft., and deal stakes at 9s. 7d. per 100, for use at Clapham Common.

That the tender of Messrs. W. E. Constable & Co., Limited, be accepted for the supply of the following tar-paving materials for use at Clapham Common, viz., bottoming, 18s. 10d. per ton; topping, 20s. 10d. per ton; dust, 12s. 6d. per ton; quartz, 30s. per ton.

That the tender of Messrs. E. J. Raybould & Co., Limited, to supply and fix wrought-iron boundary fencing at the land at Wells-road, Sydendam, for a sum of 525*l.* be accepted.

*Competitive Designs for Dust Carts.*—The Public Health Committee reported as follows:—

"On December 13 last the Council, on our recommendation, decided to offer a premium of 25*l.* for the best design for a dust cart and cover, and to submit the designs received to Sir Douglas Galton, K.C.B., F.R.S., the Chairman of the Council of the Sanitary Institute, who had kindly expressed his willingness to arbitrate upon them. Advertisements were accordingly issued and the competition aroused great interest throughout the country, a large number of designs being sent in. The competition closed on Feb. 28, but no further steps have been possible in the matter owing to the illness and death of Sir Douglas Galton, of which we have heard with deep regret. The Secretary to the Sanitary Institute has written, with the approval of Lady Galton, to say that no doubt Sir Douglas Galton's successor in office, who will shortly be appointed, would undertake the arbitration upon the designs, or that the Council of the Sanitary Institute would, if desired, appoint a special committee to do so. We have accordingly thought it well to adjourn the further consideration of the matter pending the appointment of Sir

Douglas Galton's successor, and have so informed the Secretary to the Sanitary Institute, at the same time desiring him to express to Lady Galton our sincere sympathy in her bereavement."

*Camberwell (late Oriental) Palace of Varieties*—The Theatres and Music Halls Committee reported that the Council on July 27, 1897, approved five drawings of the Oriental Palace of Varieties, which it was proposed to erect at Denmark-hill, Camberwell. The building has not yet been commenced, and the Committee have now received seven further drawings, showing a totally different planning to that already approved. The hall, which it is intended to call the Camberwell Palace of Varieties, will have seating accommodation for 1,242 persons. The arrangements appeared to the Committee to be generally satisfactory, and they recommended, and it was agreed, that the drawings be approved subject to certain conditions.

*Greenwich Tunnel. Appointment of Resident Engineer.*—The Bridges Committee recommended, and it was agreed, that Mr. W. C. Copperthwaite be appointed, during the pleasure of the Council, resident engineer, to supervise, under the chief engineer of the Council, the works in connexion with the construction of the Greenwich Tunnel, at a salary of 600*l.* a year.

*Proceedings Under the London Building Act, 1894, in Respect of the Proposed Erection of Buildings in Pentonville-road, in Advance of the General Line of Buildings.*—The Building Act Committee reported as follows, the recommendation being agreed to :—

A question has arisen under the London Building Act, 1894, in connexion with the proposed re-erection of the "Lord Vernon Arms" public-house and a shop at Nos. 180 and 182, Pentonville-road, in advance of the general line of buildings. Both of the buildings in question have one-story additions, 50 ft. deep, extending over land which originally comprised their forecourts, and the owner, Mr. Scott, claims that he is entitled in rebuilding to cover the whole of the land occupied, including the land occupied by the one-story additions, with buildings of the full height allowed by the Act, and that he is not restricted to building one-story front additions only where the present one-story additions now are, in spite of the fact that the additions are in advance of the general line of buildings. This claim he bases upon sub-section 2 of section 22 of the Act, which exempts from the "general line" provisions land which was at the commencement of the Act, or within seven years previously, *lawfully occupied* by a building or structure. It appears, however, that so far as the "Lord Vernon Arms" is concerned, the forecourt was covered over about 1850 *without any consent*, whilst as regards No. 182, Pentonville-road, the forecourt was covered over under two consents of the late Metropolitan Board of Works in 1876 and 1877 respectively, both of which contained conditions prohibiting the raising or altering of the structure. By our direction a notice was therefore served by the District Surveyor upon the builder, objecting to the proposed rebuilding on the ground that the building as proposed to be erected would infringe the general line, which had been defined by the superintending architect as the main fronts of the buildings. Mr. Scott, the owner, appealed against this notice, and the matter came before the magistrate at the Clerkenwell Police-court, when it was contended for the District Surveyor that as regards the "Lord Vernon Arms," the forecourt was not "lawfully occupied" by the one-story front addition, inasmuch as that addition had been illegally erected, either contrary to the old statutes under which the road was made, which contained prohibitions against building within 50 ft. of the road, or contrary to Section 75 of the Management Act of 1862, as having no consent, and that as regards No. 182, Pentonville-road, the conditions against raising or altering, contained in the consents, prevented the site of the one-story addition being rebuilt on to a greater height than at present, or possibly even being rebuilt on at all. This contention was upheld by the magistrate, who affirmed the District Surveyor's objection, but expressed his willingness to state a case for the opinion of the High Court if the building owner desired to appeal against the decision. We are informed that an appeal will probably be made, and, as the principle involved is one of very great importance, we recommend—"That the solicitor do take all necessary steps for upholding before the High Court the decision of the magistrate with regard to the proposed re-erection of the 'Lord Vernon Arms' public-house and a shop adjoining, being Nos. 180 and 182, Pentonville-road, in advance of the general line of buildings in that street."

*The Ground Plan of London.*—After a short discussion the Council authorised the further expenditure of 700*l.* for the year ending March, 1900, in connexion with the preparation of the ground plan of London.

*Millbank Estate Approaches.*—The Housing of the Working Classes Committee recommended, and it was agreed, that the work of forming the approaches to the Millbank estate from Earl-street and Causton-street be carried out by the Council without the intervention of a contractor, and that the plans, specification, quantities, and estimate of 712*l.*, in respect of the work, be referred to the manager for that purpose.

The Council, having transacted other business, adjourned.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

AT the meeting of the London County Council on Tuesday, the Building Act Committee brought up the following list of applications under the 1894 London Building Act. Those applications to which consent has been given are granted on certain conditions.*

### *Lines of Frontage.*

*Hampstead.*—Houses with shops on the west side of South-end-road, Hampstead, and also the erection of houses with bay-windows on the south side of John-street (Mr. F. T. Binnington).—Consent.

*Greenwich.*—Pent-roofs to the entrances to Nos. 13, 14, 16, 17, and 18, Spencer Villas, Little Heath, Charlton, and the construction of timber framing to the barge boards to the gable of No. 15, Spencer Villas (Mr. J. Bull).—Consent.

*Brixton.*†—A detached greenhouse erected on the forecourt of a house know as Rathcole, Ferndale-road, Brixton, to abut upon Bedford-road (Mr. W. A. Pite for Dr. C. Fenwick).—Consent.

*Fulham.*—A portion of a church in Lillie-road, Fulham, at the corner of Moylan-road (Messrs. J. E. K. and J. P. Cutts, for the Rev. P. S. G. Propert).—Consent.

*Hammersmith.*—A brick, wood, and glass porch at the entrance to No. 414, Uxbridge-road, Shepherd's-bush (Mr. S. A. Fox, for Mr. C. R. Cross).—Consent.

*Lewisham.*—A greenhouse erected in the garden at the rear of No. 59, Perry-hill, Catford, to abut upon Rutland-road (Mr. A. Miles).—Consent.

*Lewisham.*—A greenhouse erected in the garden at the rear of No. 70, Burnt Ash-road, Lee, to abut upon Handen-road (Mr. H. Roberts for Mr. C. Wood).—Consent.

*Lewisham.*†—That the consent of the Council of February 21 to the rebuilding of the "Two Brewers" public-house on the west side of Perry Hill, Catford, at the corner of Clarens-road, and the erection of four houses with shops on the west side of Perry Hill, adjoining the public-house (Mr. Cruwys for Mr. E. J. Janes) be modified by the omission of the words "sign post and" from such consent) —Agreed.

*St. Pancras, North.*—One-story shops upon part of the forecourts of Nos. 114 and 116, Fortress-road, St. Pancras (Mr. C. Wall for the Misses A. and E. Wall).—Consent.

*Lewisham.*—An hotel, with stables at the rear, on the east side of Laleham-road, Catford, at the corner of a proposed road in continuation of Ringstead-road (Mr. H. Roberts for Messrs. H. Hawkes and R. Howell).—Refused.

*Kensington, South.*—The rebuilding of part of No. 12, Sumner-place, to an advanced line in Old Brompton-road, and the partial enclosure of an open portico at those premises next Sumner-place (Mr. W. H. Collbran).—Refused.

*Fulham.*†—A one-story building in the yard at the rear of the "White Horse" public-house, Parson's-green, Fulham, to abut upon Ackmar-road (Mr. D. Matthews).—Refused.

*Lewisham.*—Four houses with shops on the west side of High-street, Lewisham, on part of the site of a house and grounds known as "The Priory" (Messrs. Phillips, Norfolk, & Prior for Mr. H. T. Harrington).—Refused.

*Lewisham.*—Houses with bay-windows on the western side of a proposed extension of Manor Park, Lee, between No. 54, Manor Park and Staplehurst-road (Mr. A. W. Osborn for Messrs. Johnson & Aldridge).—Refused.

*Lewisham.*†—A one-story shop upon part of the forecourt of No. 155, Stanstead-road, Forest Hill (Mr. A. W. Sheppard for Mr. E. H. Bray).—Refused.

*Norwood.*†—Buildings on the west side of Norwood-road, West Norwood (Mr. F. A. Powell for Mr. C. E. Tranter Lamb, Mr. A. G. Rose, and others).—Refused.

*Norwood.*†—A one-story entrance lobby to the King's Head public-house, No. 82, High-street, West Norwood (Messrs. Witherington and Hogwood for the New Phœnix Brewery Company, Limited).—Refused.

*Strand.*†—Six wood and glass show-cases on the faces of the pilasters in front of Nos. 171 and 173, Regent-street, St. James's (Mr. G. Walton for Kodak, Limited).—Refused.

* Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

*Wandsworth.*—A one-story shop upon part of the forecourt of a house on the west side of Garratt-lane, Wandsworth, at the corner of Thorndean-street (Mr. E. Bowering for Mr. F. J. Liddington).—Refused.

### *Width of Way.*

*Bow and Bromley.*—An electric lighting station proposed to be erected at Glaucus-street, Bromley, at less than the prescribed distance from the centre of Yeo-street (the Board of Works for the Poplar District).—Consent.

*Clapham.*—A one-story building at the rear of No. 81, Altenburg-gardens, Lavender-hill, Battersea, at less than the prescribed distance from the centre of Green-lanes (Mr. H. Bignold for Mr. H. Hubbard)—Consent.

*Hampstead.*—A dwelling-house on the site of No. 4, Murray-place, Flask-walk, Hampstead (Mr. H. E. Haggard for Messrs. H. & W. Grey).—Consent.

*St. George-in-the-East.*—A one-story lavatory upon part of the forecourt of the workhouse on the east side of Raine-street, St. George-in-the-East (Mr. G. A. Wilson for the Guardians of the Poor of St. George-in-the-East).—Consent.

*Finsbury, Central.*—That the request of Messrs. Dunk & Bousfield on behalf of Mr. J. R. Hickman, for permission to retain a warehouse on the site of Nos. 8 and 9, Clerkenwell-close, Clerkenwell, at less than the prescribed distance from the centre of Warden-place be not acceded to.—Agreed.

*Woolwich.*—That the request of Mr. E. J. W. Hider, on behalf of Mr. H. Laws, for permission to retain the forecourt boundary or fence in front of an addition erected at the Castle Inn, High-street, Eltham, such boundary or fence being at less than the prescribed distance from the centre of the street, be not acceded to.—Agreed.

### *Space at Rear.*

*Limehouse.*—A modification of the provisions of Section 41 (1) (vi.) of the London Building Act, 1894, with regard to open spaces about buildings, so far as relates to the proposed erection of two blocks of residential flats, with a shop on the ground floor, on the site of Nos. 19, 21, 23, and 25, Butchers-row, Ratcliff, with an irregular space at the rear (Mr. J. E. Lamerton).—Consent.

*Dulwich.*—A modification of the provisions of Section 41 of the London Building Act, 1894, with regard to open spaces about buildings, so far as relates to the proposed erection of two two-story dwelling-houses on the east side of Solway-street, East Dulwich-road, Peckham Rye, with an irregular space at the rear (Mr. A. Keen, for Mr. C. Pennack).—Refused.

### *Deviation from Certified Plan.*

*Lambeth, North.*—Certain deviations from the plan certified by the District Surveyor under Section 43 of the London Building Act, 1894, so far as relates to the proposed rebuilding of a stable on the west side of Morton-place, Kennington-road, Lambeth (Mr. W. E. F. Crook for Mr. P. Green).—Refused.

### *Lines of Fronts and Width of Way.*

*Strand.*—An addition to Drury Lane Theatre, and a block of residential flats, with shops on the ground floor, on the south-west side of Drury-lane, St. Martin-in-the-Fields, between Russell-street and a proposed diversion of Marquis-court (Mr. P. E. Pilditch for the Theatre Royal, Drury-lane, Limited).—Consent.

*Strand.*†—An angle turret and two oriel windows to a building on the site of Nos. 66 and 67, St. James's-street, and No. 1, St. James's-place (Mr. R. J. Worley).—Consent.

*St. George, Hanover-square.*†—A projecting oriel window to abut upon Grafton-street, and a porch to abut upon Hay Hill, to a proposed building upon the site of Nos. 1 and 2, Grafton-street, St. George, Hanover-square, at the corner of Hay Hill (Messrs. Boehmer & Gibbs).—Refused.

### *Formation of Streets.*

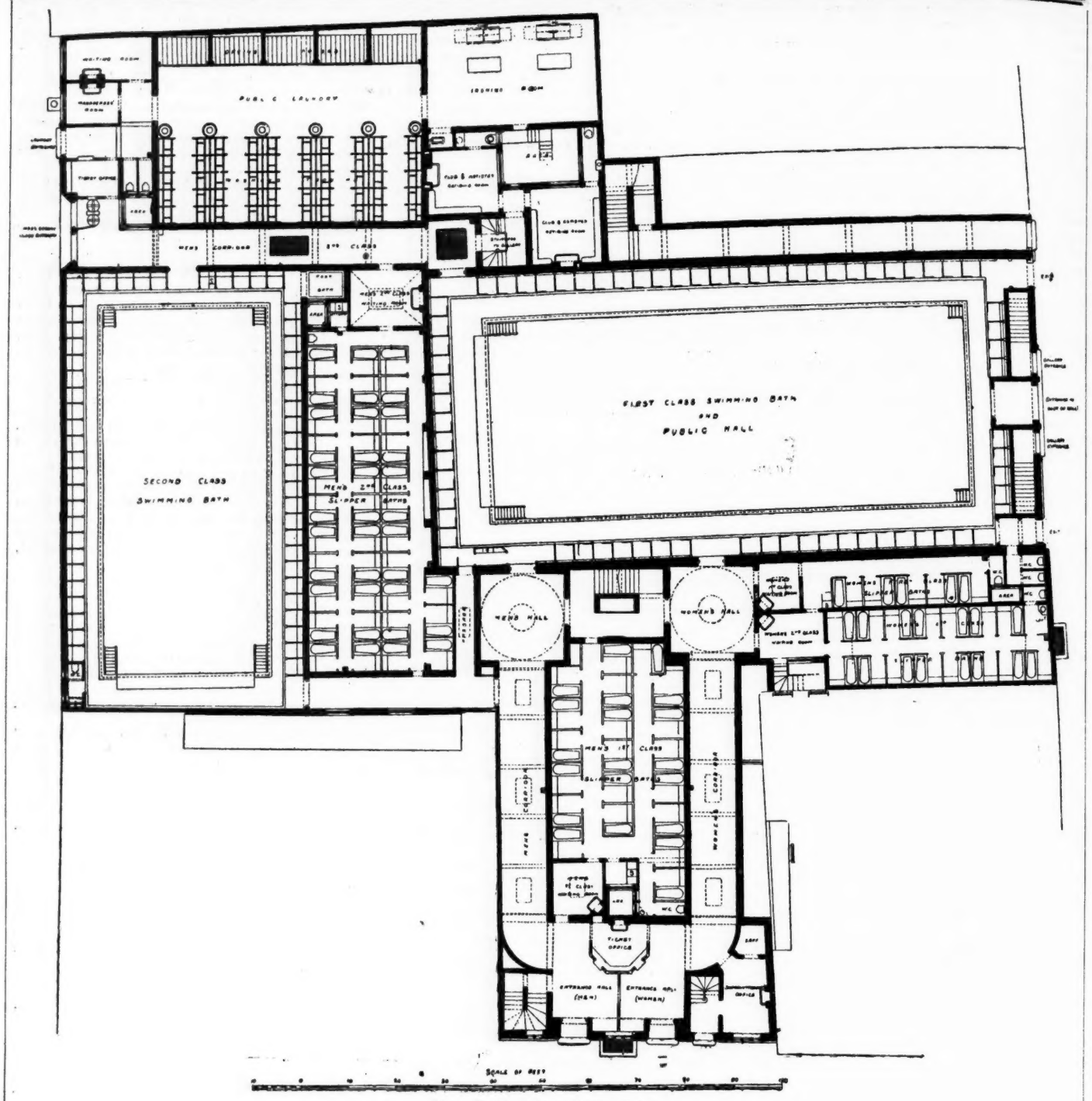
*Wandsworth.*—That an order be issued to Mr. P. Meredith, sanctioning the formation or laying out of a new street for carriage traffic, to lead from Balham Hill to Westlands-road, Clapham. That the name Hazelbourne-road be approved for the new street.—Agreed.

*Wandsworth.*—That an order be issued to Mr. W. C. Poole sanctioning the formation or laying out of three new streets for carriage traffic to lead from Merton-road to Mellison-road, Tooting (Messrs. Swain & Selley). That the names Selling-court-road (in continuation), Nutwell-street, and Woodbury-street be approved for the new streets.—Agreed.

*Whitechapel.*—That an order be issued to Mr. F. Matcham sanctioning the formation or laying out of a new street, 20 ft. wide, for foot traffic only, to lead from Whitechapel-road to Charlotte-street, Whitechapel (Mr. W. M. Tilson). That the name Tasmania-place be approved for the new street.—Agreed.

### *Cubical Extent.*

*Woolwich.*—That, subject to the provisions of Section 76 of the London Building Act, 1894, the consent of the Council be given to the erection at W. T. Henley's Telegraph Company's Works, Henley-road, North Woolwich, of a building to




*New Baths, Shoreditch. Plan.*

exceed in extent 250,000, but not 450,000 cubic feet, and to be used only for the purposes of the manufacture of electric cables (Mr. A. E. Salmon for the company).—Agreed.

### *Height of Buildings.*

*Dulwich.*—A portion of the south wall of the Camberwell Palace of Varieties at the rear of the "Golden Lion" public-house, No. 23, Denmark Hill, Camberwell, to abut on a proposed street to be named Orpheus-street (Mr. E. A. E. Woodrow for Mr. Venner).—Consent.

*The recommendations marked † are contrary to the views of the Local Authorities.*

FOUNTAIN AND MERCAT CROSS, ERROL, N.B.—A fountain and Mercat Cross has been presented to Errol by Sir William and Lady Ogilvy Dalgleish. It is executed from a design by Messrs. Johnston & Baxter, architects, Dundee, and is sculptured out of red stone from Dumfriesshire, with basins of polished Peterhead granite. Rising from the basin level, the pedestal takes a circular form. On one side a lion's head is carved, from which the water issues to supply the basins, with the overflow running into small troughs below for dogs. The pedestal is capped by a moulded and carved cornice and base, on which rest the column and carved capital, with scrolls and thistle ornament. On the top of the capital is placed the unicorn in bronze, with the Scottish shield in front. On the pedestal are placed two bronze panels—one with the crown and letters V.R., and dates 1837-1897 modelled in relief. The work has been executed by Mr. Alexander Neilson, sculptor, Dundee.

## NEW SHOREDITCH BATHS.

WE give the ground plan of the new baths for Shoreditch which have just been completed from the designs of Messrs. Spalding & Cross and H. T. Hare. The plan explains itself. The accommodation provided is as follows:—*Men's First-class.* — Twenty private baths, one public swimming-bath 100 ft. long and 40 ft. wide. There are sixty-nine dressing-boxes around this bath, and these are made to fold back against the wall, so that the space they occupy is then added to the area of the hall. *Men's Second-class.*—Thirty-seven private baths, one public swimming-bath 75 ft. long and 35 ft. wide. There are fifty-six dressing-boxes around this bath, and a foot-bath is also provided. *Ladies' First-class.*—Five private baths. *Ladies' Second-class.* — Sixteen private baths. All the above departments, with their separate waiting-rooms attached, are placed on the ground floor level, and each department has a separate entrance from the public streets. The large swimming bath has been licensed by the London County Council as a public hall for entertainments, and ample and direct ingress and egress has been provided by the three separate entrances in Pitfield-street, Coronet-street, and Bowling Green-walk. The necessary cloak and retiring rooms and other accommodation is afforded by the utilisation of the club and waiting-rooms. The public hall, when floored over, will accommodate about 1,200 persons on the ground floor and 530 seats are provided in the gallery. Residential accommodation is provided for the Superintendent in the upper part of the Pitfield-street building, and is approached by a separate staircase. The board-room and office is on the first floor and is approached by a separate staircase from the entrance-hall. The public laundry is also on the ground-floor level, and contains fifty washing compartments and fifty steam-drying horses, and other necessary fittings for ironing and mangling. The public entrance to this department is from Bowling Green-walk, and it is practically completely separated from the baths portion of the establishment. Ample accommodation is provided in the basement for the storage of the movable floors and platforms, when these are not required during the bathing season. The buildings have frontages to three separate streets, viz., Pitfield-street, Coronet-street, and Bowling Green-walk, the first-named being the main front, which has been designed to group with the adjoining free library. The whole of the elevations are faced with best red facing bricks with buff terra-cotta dressings supplied by the Burmantofts Company, and the roofs are covered with red tiles. In the interior of the building glazed bricks and tiles have been very largely used, and the woodwork in the main corridors and large swimming bath is of teak. The whole of the floors and flat roofs are of fireproof construction, and the roofs over the swimming-baths, laundry, &c., are constructed with wrought-iron principals.

PROPOSED HOTEL, KILLALOE.—A new hotel in connexion with the tourist traffic, promoted by the Shannon Development Company, is about to be erected at Killaloe. The estimate of the building is 5,000*l.*, the architect being Mr. Holmes, C.E., Dublin, and the contractor Mr. John Hayes, of Limerick. It will contain twenty-five bedrooms and the usual hotel accessories, and is expected to be finished within four months.

## THE BUILDING TRADE DISPUTE.

THERE is very little to report this week in reference to the Plasterers' dispute. There is no indication that the dispute is likely to end soon.

At a meeting of the Leeds Branch of the Yorkshire Federation of Master Builders, which was held on the 14th inst. in the Albert Hall, and attended by about 150 representatives of local firms, the present position and possible developments of the Plasterers' lock-out were fully considered, and the following resolution was unanimously passed :—"That this federation fully approves of the action taken by the Standing Committee of the National Association of Federated Master Builders in locking out the Plasterers, and urges the National Association to further consider the advisability of demanding that the allied trades shall also cease objectionable practices, as contained in the operatives' circular, and this branch of the federation assures the National Association of its loyal and hearty support in any action it may take." It was mentioned during the meeting that the action of the master builders met with the full sympathy and approval of the council of the Leeds and Yorkshire Architectural Society.

A similar resolution to that passed at the above gathering was adopted at a meeting of the Leeds Master Builders' Association, which was held on the 14th.

On the 17th inst. a special meeting of the Executive Council of the Central Association of Master Builders was held at the offices, in Bedford-street, Strand. At the conclusion of the meeting Mr. Costigan, the Secretary, stated that he was unable to afford information in regard to the policy which the employers intended to pursue, nor could he say how many firms had complied with the lock-out order. It was, however, certain that the masters would not withdraw from the position they had taken up until the union gave an undertaking that the "objectionable practices" should be stopped.

A number of fresh firms in London and the country on Saturday last paid off their union plasterers, and the employers are confident of being able to induce all those masters who at present remain outside the Federation to put into force the lock-out order. According to the latest returns issued by the Union on Saturday, close upon 3,000 men had been locked out. Of this number about 1,800 signed on for strike pay, the others having found employment with firms not connected with the Master Builders' Association.

Meetings were held at all the branches of the Union in London and the country on Saturday evening, when each member paid in the special levy of 3s., ordered by the Union last week. It is expected that the levy will realise 1,500*l.* every week, and the Union officials state that this sum will be sufficient to provide for all the men who are likely to be thrown out of work.

## BOOKS RECEIVED.

CARDIFF RECORDS : Materials for a history of the County Borough. Edited by J. Hobson Matthews. (Elliot Stock).

THE STORY OF ROUEN. By Theodore Andrea Cook. (J. M. Dent & Co.)

CITY OF LONDON DIRECTORY, 1899. (*City Press* Offices).

AN ILLUSTRATED RECORD OF NATIONAL COMPETITION DESIGNS ; 1896-97. Compiled by John Fisher. (Chapman & Hall).

MIDDLESEX HOSPITAL : NEW BUILDING. — The work recently completed at this hospital comprised remodelling existing lecture theatre and forming research laboratory at back of seating ; taking down and rebuilding of old school buildings on west side of garden, building an entirely new wing on ground leased of Berner's Estate in Union-street. the Union-street block comprises :—Dissecting-room, physiological lecture-room, balance-room, class-rooms for operative and practical surgery, demonstration and lecturer's rooms. The block facing the garden contains Dean's room, entrance-hall, staircase, &c., chemical lecturer's room and practical class-room, pathological lecture-room and private laboratory for lecturers on pathology and bacteriology. The building work generally has been carried out by Messrs. L. H. & R. Roberts, the plumbing by Messrs. Dent & Hellyer, hot-water engineering by Messrs. Haden & Son, electric lift by the Otis Elevator Company, fittings by Messrs. Hammer & Co. and Messrs. Baird & Tatlock, terrazzo floors by Messrs. De Grelle Houdret. Mr. Keith D. Young is the architect.

# Correspondence.

*To the Editor of* THE BUILDER.

## LOCAL GOVERNMENT BILL.

SIR,—In your issue of March 11 there is a leading article on this subject, calling attention to the provisions of Clause 6, which you evidently thought pointed to an alteration of the building law in London. By the use of italics you make the clause appear to support this contention, as follows :—

"6. The Committee of the Privy Council hereinafter mentioned shall make a Provisional Order determining which of the powers under the London Building Act, 1894, or any amending Act, other than the powers mentioned in Part One of the Second Schedule to this Act, are to be exercised by the London County Council and the Borough Councils respectively, and the conditions under which they are to be exercised, *and may embody in the Order such modifications of the London Building Act, 1894*, and such provisions for the protection of existing interests, *as may appear expedient* for giving effect to the determination."

If you had italicised the last six words—"*for giving effect to the determination*" a totally different complexion would have been given to the clause.

When the Bill was first placed in my hands I read the clause carefully and came to the conclusion that the alterations contemplated were merely such as might be required to carry into effect the contemplated transfer of powers. The L.C.C. has taken counsel's opinion upon the matter, which opinion entirely confirms my view.

I quite concur with you that it would not be right to make any alteration as regards the restrictive provisions of the Building Act in this Bill, which is one dealing with administrative machinery.

G. B. LONGSTAFF.

*** The clause may only have primarily the intention ascribed to it by Dr. Longstaff, but it must be obvious that it opens the door to a much wider interpretation.—ED.

## BACTERIAL PURIFICATION OF SEWAGE.

SIR,—I thank you for the able criticism of my Patent System in your issue of March 18 instant. But, with regard to the remark that the sewage would "pass invariably along the lowest layer only of the filtering material," may I explain that the filter does not work continuously as the tank does (in which case the remark would be correct). Each filter is filled and allowed to stand full for a short time, and then discharged and left at rest while the other filters are being filled in succession. Under these conditions it is clear that the discharge would be drawn uniformly through the entire length and depth of the filtering material, and not through the bottom layer only.

I fear my imperfect description has been at fault.

F. WENTWORTH-SHEILDS, M.Inst.C.E.

## ARCHITECTS AND SECRET COMMISSIONS.

SIR,—I read with special interest your article on the Report of the London Chamber of Commerce and secret commissions, and especially your remarks dealing with trade discounts, which, in the building trade, are approaching a disgraceful pitch. For this state of things, architects, if not to blame, are to a certain extent responsible, and the remedy is partially in their hands ; and it is their duty to see to their clients' interests in this as in other respects, even at the expense of a little extra trouble and annoyance from some contractors who risk ignoring a special clause in a contract that all provisional sums will be paid direct by the building owner and are exclusive of trade discounts or allowances. I had a catalogue of hardware sent me the other day, the prices of which were subject to from 30 to 66 per cent., and at present I have one before me for lead lights subject to 20 per cent., and another for clay ware at 40 per cent. Take, for instance, lead lights, an item which is invariably a provisional sum, which architects too often omit to deal with direct. A case was recently brought to my notice where 3s. 6d. per ft. was allowed for this work ; the maker happening to call on the architect obtained information, but was referred to the builder. On doing so, he was asked to send designs to the architect for what he could do at 2s. 6d. per ft. subject to the usual terms, upon which the maker bid him good day, but, unfortunately, did not carry the matter further, and inform the architect.

Another item which often means a large sum to the contractor and consequent loss to the building owner is, as you mentioned in your article, grates and ranges. At the present time I have a contract on amounting to something like 13,000*l.* or 14,000*l.*, for which I provide for grates the sum of between 400*l.* and 500*l.* The contractor is paid for setting and fixing these, and all he has to do is to receive them and return the cases. I called and selected these at one of the show-rooms and asked the trade discounts allowed for the "builder," but was put off with "Oh, we rely upon our business with the architects selecting, and consequently can afford to allow the builders only a very small discount!" I would not, however, give the order till this was known, which I eventually found out was 20 per cent. plus 2½ per cent for cash ; thus my clients are saved from 90*l.* to 110*l.* on this one item alone. It is, however, known that so many architects do not trouble with these matters, that those who do are often met with unpleasantness from contractors who risk these clauses, and, instead of adding to their contract whatever profit they want on such goods, trust to being allowed to order and pay for them, and so claim these exorbitant allowances. Is it not time that manufacturers combine to abolish this state of things, and openly acknowledge that they allow "builders," say, a uniform 5 or 10 per cent. for their trouble of receiving and what little responsibility they have in the matter, which is in many cases more than ample? Can we not ask those architects who hitherto have not troubled themselves in this matter, both for their clients' interest and to assist in checking these abuses, to combine in having a special clause in all contracts disallowing any trades or other discounts, and see that the same is strictly fulfilled?

AN ARCHITECT.

## *GENERAL BUILDING NEWS.*

PROPOSED BAPTIST CHAPEL, MANNINGHAM.—It is proposed to erect a new Baptist chapel in Carlisle-road, Manningham. The architect is Mr. James Ledingham, of Bradford.

SUNDAY SCHOOL, DERBY.—On the 15th inst. Sir Henry Bemrose, M.P., laid the foundation stone of the new Sunday school connected with the Primitive Methodist Chapel, Keddleston-street, Derby. The architect is Mr. John Wills, of Derby, and the builder Mr. H. J. Robinson, of Derby. The cost of the building, including heating and lighting, will be about 2,025*l.*

MASONIC HALL, LURGAN.—Plans for the erection of a new Masonic Hall in Lurgan have been prepared by Mr. Ferguson, architect, Belfast, and finally approved of by the building committee. It will occupy a position in Windsor-avenue.

ABERDEEN PARISH COUNCIL OFFICES. — This block is now practically finished. The building, which is of white granite, consists of four stories and attics. The east or main front extends 64 ft. along Union-terrace, and the height from the footway to the top of the parapet is 58 ft. The south elevation extends along East Diamond-street for 36 ft. The illustration in our issue of May 14, 1898, shows the main doorway, which is approached by a flight of stone steps. On the basement floor are heating apparatus, fireproof charter-room, furniture store, coal cellars, &c. On the ground floor are situated rooms for officials, &c. On the first floor are rooms for various inspectors and others. On the second floor are the council chamber or hall, large committee-room, chairman's room, and smaller committee-room. The council hall, which measures 38 ft. by 30 ft., is 20 ft. high. The large committee-room, which opens on the hall, has a floor space of 30 ft. by 22 ft. The smaller committee-room measures 25 ft. by 18 ft., and the chairman's room communicates both with it and the hall. There are lavatories on each flat, and on the second floor there is also separate accommodation for lady members of the Council. In the attic floor are four dwelling-rooms for the caretaker. The whole building is lighted by electricity, and all the corridors and staircases are warmed by hot-water radiators. The vestibule and collecting-room have mosaic flooring, and the waiting-room is floored with wood blocks. The architect is Mr. A. Marshall Mackenzie, A.R.S.A., Aberdeen, and Mr. William King has acted as clerk of works. The total cost (including price of old buildings on site) will be about 15,000*l.* The various contractors have been as follows :—Mason work, Watt & Fordyce ; carpenter, Hendry & Keith ; plasterer, Stephen & Gibb ; plumber, P. Stewart ; painter and decorator work, Mason & Sons ; heating, R. Tindal ; slater work, G. Farquhar ; fittings, J. & J. Ogilvie ; electric light, P. C. Middleton & Co. ; electric bells, and telephones and grates, Shirras, Laing, & Co. ; lift, (Pickering's patent), Abel & Garden—all of Aberdeen.

HOSPITAL ACCOMMODATION, LIVERPOOL. — Mr. Theodore Thomon, M.D., barrister-at-law, held an inquiry recently on behalf of the Local Government Board at the Municipal-buildings, Dale-street, with respect to the application of the Liverpool Corporation for sanction to borrow three sums of money amounting in all to 63,500*l.* for hospital purposes. Mr. E. R. Pickmere, Deputy Town Clerk, stated that it was proposed to borrow 3,500*l.* for the purchase of additional land at Fazakerly. The site consisted of 30,669 square yards. The next part of the application was to borrow 20,000*l.* to erect a smallpox hospital at Fazakerly, this being only a portion of the scheme the Corporation had in contemplation. Plans were submitted showing the two ward pavilions it was proposed to erect, each ward to contain twenty beds and a separation ward of two beds. The details showed that the addition of a new wing to the present house to be used as an administrative block was estimated to cost 3,500*l.* ; two pavilions 4,000*l.* each ; laundry and disinfecting block 3,000*l.* ; drainage, roads, and fences 2,070*l.* ; lodge and waiting-room 1,000*l.* ; discharge block 530*l.* ; and mortuary 400*l.* Mr. T. Shelmerdine, Surveyor, said that there would be 100 ft. between each

pavilion, and from the boundary of the fence to the nearest building about 50 ft. In regard to the drainage it was proposed to take a drain down the main road to the Corporation's sewage farm. —The third part of the inquiry had reference to the Corporation application for sanction to borrow 40,000*l.* for the extension of the City Hospital east, Mill-lane, Old Swan, the Surveyor explaining that the present block contained thirty-two beds, and they proposed to add eighty-eight. The details were two buildings of an administrative block, 10,800*l.*; large discharging block, 1,700*l.*; laundry building and fittings, 6,100*l.*; east pavilion, 8,400*l.*; west pavilion, 8,300*l.*; mortuary and post-mortem room, 550*l.*; laboratory, 250*l.*; boundary walls and railings, 1,250*l.*; and boilers, heating machinery, hot-water supply, roads, and laying-out of grounds, 5,000*l.* The total came to 42,350*l.*, and the extra amount, it was stated, had been added as a consequence of the Local Government Board requiring the two buildings to be separated. The Board had also suggested that there should be a lift, but the Surveyor remarked that a lift would take up considerable space, and it had been almost like a Chinese puzzle for the accommodation now proposed to be designed out of the room at their disposal.

BUILDING IN BIRMINGHAM.—According to the returns prepared by Mr. Henry Price, the City Building Surveyor, 1898 was a busy year for the Birmingham builders. Not only is the city rapidly developing in all directions where development is at all possible, but rebuilding and structural alterations have been extensively carried out in the midst of the city. In the matter of the number of houses and shops erected the past year has shown a notable increase, the total being 2,308, compared with 1,806 in 1895, and 1,852 in 1897. Yet, despite the increasing rate at which this class of property is being erected, there is still a dearth of houses. Though the number of shops erected during the past year show a marked increase, a decrease in the number of business premises put up during the past twelve months is to be noticed, for whilst thirty-seven of such establishments were erected in 1897, only thirty were constructed in 1898. But even this shows a great advance compared with the year 1895, when only thirteen of such premises were built. During the past four years there has been a remarkable fluctuation in the number of warehouses and shops erected. In 1895 the number erected was 197, in the following year there were 247, and in 1897 only 170, whereas last year the number increased to 229. In the matter of churches the returns for 1898 show that only one such edifice was erected, compared with three in 1897, two in 1896, and two in 1895. A diminution is also noticed with regard to the chapels, for while none were erected last year, two such buildings were constructed in 1897, two in 1896, and one in 1895. Compared with 1897, the past year appears to have been a bad one in the matter of schools, for whereas five schools were added to the educational resources of the city in 1897, there were only two last year. The miscellaneous buildings for 1897 only total up to 142, which number compares rather unfavourably from a building point of view with 326 in 1897 and 314 in 1896. The alterations and additions to existing buildings for the past year also show a diminution. —*Birmingham Mail.*

EXTENSION OF SKIBO CASTLE.—Skibo Castle, the Highland residence of Mr. Andrew Carnegie, is about to be extended. The plans have been prepared by Messrs. Ross & Macbeth, architects, Inverness. The work, which is to cost a sum of 25,000*l.*, has been begun. The present main part of the Castle forms the east elevation. The new additions will form the south and west elevations, which are situated on high terraces overlooking the Dornoch Firth, the Kyle of Sutherland, and the glens and ranges of hills to the west.

NEW PUBLIC HALL, BEARSDEN, DUMBARTON.—The new hall which has just been erected at Bearsden occupies a site at the corner of the Drymen-road and a newly-opened street adjacent to the Free Church. The hall, which measures 70 ft. long by 43 ft. broad, accommodates 600 persons, inclusive of a small gallery which is placed over the entrance lobby at the east end of the hall. The architect is Mr. Alex. Petrie, Glasgow.

MALTING, SAWBRIDGEWORTH.—A new malting at Sawbridgeworth was opened recently. It has been built for Messrs. H. A. & D. Taylor, of Bishop Stortford and Ware, by Mr. J. A. Hunt, of Hoddesdon, at a cost of 15,000*l.* It is a 180-quarter malting, and contains six working floors, 120 ft. by 50 ft.; fourteen storage bins, and four drying kilns 37 ft. square. Messrs. Spencer & Co., of Melksham, and Messrs. Boby & Co., of Bury St. Edmunds, supplied the machinery. The architects and engineers were Messrs. Inskipp & Mackenzie, of London, and clerk of the works Mr. E. Chinnock, of Bishop Stortford.

NEW ALMSHOUSES, &C., AT CHARNOCK RICHARD NEAR CHORLEY.—The Bishop of Manchester recently dedicated four new almshouses, a parochial room, and a caretaker's house, which have been erected at Charnock Richard, near Chorley. Mr. Tansley was the architect.

WORKING MEN'S CLUB, BRIDGETON, LANARK.—The new premises for the Bridgeton Working Men's Club were opened on the 21st inst. The buildings are situated in Landressy-street, the frontage being built of red sandstone. A vestibule with mosaic floor and tiled walls leads to the principal hall. A library and chess and reading rooms are also provided. Mr. John Gordon, of Glasgow, was the architect, and the following were the contractors: mason work, Mr. Murdock; joinery, Messrs. George Laird & Sons; plastering, Mr. Hamilton; tiling, Mr. Mann; and plumbing, Mr. Leggat.

VICTORIA HALL, ASTON. — The Victoria Hall Company, Aston, have decided to increase the accommodation at the hall by building upon the land in the rear, adjoining Witton-road. Plans have been drawn by Mr. A. Edwards, of Bennett's Hill, for the erection of a block of buildings. The additions will consist of a large hall, 47 ft. by 46 ft., cloak-rooms, refreshment-room, small dining-hall, and suite of Masonic rooms. The new large hall will accommodate about 100 dancers, or an audience of about 400. The total cost of the buildings and furnishings now proposed is estimated at about 3,000*l.*

## *SANITARY AND ENGINEERING NEWS.*

HORNSEA WATERWORKS, EAST YORKSHIRE.—The extension which has just been completed provides for the water from the existing shaft, which is a little over 70 ft. deep, being lifted by the present pump. The water is then carried through an 8-in. pipe, and delivered through a perforated spreader, which stands 22 ft. from the ground. Through this spreader, made of copper and somewhat resembling in appearance a huge holder for flowers, the water is sprayed on perforated ledges of the aëration table, which break up the water, a high wall being erected round the spreader to prevent the water from splashing out. From the aëration table the water flows down the weir (consisting of a succession of glazed brick steps), and, with this second process of the aëration, is precipitated in the settling-tanks. Provision is made for the conveyance of the water direct from the air-chamber to the settling-tanks when the weather is too severe to admit of the aëration table and the weir being brought into use. After the water has been well oxidised by the aëration, any sediment is precipitated to the bottom of the settling-tanks. There are two settling-tanks, each of which has a capacity of 10,000 gallons, and can be used either separately or jointly. Each are fitted with two large floating valves, which convey the water from that altitude, where it is clearest. The water is then conveyed through iron pipes along the bottom of the filtering chambers through bell-mouthed pipes into circular sumps in the centre of these chambers. The water is steadily distributed from these sumps on to the filtering materials, which are sand, gravel, and coarse gravel. After the water has filtered down to the bottom of these chambers, it is conveyed along several sanitary pipes, and then through the distributing mains of the reservoir. The three filtering chambers each have a superficial area of 720 square feet. Each chamber is 36 ft. in length, 20 ft. wide, and 4 ft. deep. Gun-metal faced valves are placed to each sump, filter, and settling-tank, so that any part of the plant can be cut off for repairs or cleaning out. The reservoir is 135 ft. long and 51 ft. wide over all. It is divided into two compartments, each having a carrying capacity of 200,000 gallons. The construction is on the retaining-wall system and puddled on the outside with 12 in. of tempered clay. The reservoir is provided throughout with sumps, valves, and manholes. The whole of the reservoir, settling-tanks, and aëration buildings are constructed of Portland cement concrete, and faced up in cement. There are proper inclines introduced into all the chambers, and the water is pumped from the reservoir by a simplex positive action feed-pump, which will be fed by steam from the present boiler. This pump forces the water into the main under pressure and also delivers the water to the storage tank at the top of the existing tower. There will therefore be the option of a supply of water by either or both of these systems, including the means of gravitation as it is now employed. These systems will permit a constant supply of water to the town, and allow for any contingencies that may arise from breakdowns or fire. The extra force of water will be of great service to the Local Authorities in the flushing of the drains. It was intended to use polarite as one of the filtering materials. This would, no doubt, have been of great advantage in purifying the water, but it had to be omitted from the scheme at present on account of the additional expense involved. The erection of this plant will almost entirely occupy the area of about an acre adjoining the tower, which is the property of the Council. The aëration and settling tanks are erected on the south side of the tower and the reservoir on the eastern boundary. The cost has been about 2,000*l.* Mr. P. Gaskell, C.E., designed and supervised the works.

GENERATING STATION FOR FULHAM.—At the last meeting of the Fulham Vestry the solicitor reported that Messrs. Wilkinson Bros. were not disposed to proceed upon the tender which had already been accepted by the Vestry, unless the Vestry were willing to vary it by extending the time for the execution of the work to twelve months, and the rate of payment to 90 per cent., and not 80 per cent., as mentioned in the conditions upon which the tender was based. Mr. Minter also was prepared to enter upon his contract only upon condition that the Vestry acceded him ten months for the execution of his work, instead of six, as mentioned in the conditions of contract. The Vestry decided to alter the terms of the contract as desired by the builders. Mr. F. G. Minter's contract for the new generating station amounts to 22,970*l.* The chimney shaft is to be put up by Mr. Cammack Dennis, of Bury.

## *FOREIGN.*

FRANCE.—At the Service des Eaux of Paris M. Bechmann, engineer, has been appointed as successor to M. Humblot, under the title "Chef du Service Technique des Eaux d'Assainissement," with M. Launay as his second in command.——The Directors of the Louvre have organised a curious collection of sketches of animals, studies of flowers, &c., by Vittore Pisano, known as "Le Pisanelló."——The Fine Arts Department has presented to the Luxembourg Museum the four unfinished cartoons by Puvis de Chavannes which were temporarily placed with his other works in the Panthéon.——A large hippodrome is being built in the Boulevard de Clichy, Paris, at the angle of Rue Caulaincourt and Rue Forest, from the designs of MM. Cambon, Duray, and Galeron. It is expected to be completed by December.——There is a vigorous effort being made to obtain the consent of the French Parliament to a canal from the Marne to the Seine, at an estimated cost of 32,000,000 francs.——M. Ponsin, an eminent artist in stained glass, is just dead. He contributed very much to the revival of the art in France.——The death is announced, at the age of eighty-two, of M. Jean Baptiste Krantz, formerly Inspecteur-Général of Ponts et Chaussées. He directed the works of the Exhibition of 1867, and was Commissaire-General for that of 1878. He had for many years also been Director of the navigation of the Seine, in which he made a great many improvements. In 1870-71 he took, as engineer, an important part in the defence of Paris. His nephew, M. Camille Krantz, is at present Minister of Public Works.

## *MISCELLANEOUS.*

GOOD FRIDAY WEEK.—In consequence of the Easter holidays, next week we go to press a day earlier than usual. All communications for the Editor must reach him by the *first post on Wednesday* morning, except lists of tenders, which will be received up to 10 a.m. of the same day.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Mr. Sydney Perks, architect, has removed his offices from 13, Waterloo-place to 5, Crown-court, Cheapside, E.C.——The two businesses of Hendry & Pattisson, of 4, Marlborough-mews, heating and ventilating engineers, and E. Farrar & Co., late of 69, Berners-street, W., casement makers and art metal workers, have been amalgamated and incorporated under the Companies Acts, and will henceforth be carried on jointly under the style of Hendry & Pattisson, Limited. The works and offices of the company will be at 4, Marlborough-mews, W.——Messrs. C. A. Zadig & Co., portable railway manufacturers, have removed from No. 444 at 11, Queen Victoria-street, City, to more commodious offices, Nos. 11, 11A, and 11B, in the same building. ——Messrs. F. Beesley & Son, civil engineers, of 11, Victoria-street, Westminster, have taken into partnership Mr. H. Bertram Nichols, A.M.Inst.C.E., of Birmingham; their respective practices being amalgamated under the style of Messrs. Beesley, Son, & Nichols.

LONDON COUNTY TRAMWAYS.—The London County Council will introduce a Bill in the course of the current Session for reconstructing and altering any tramways acquired by them under the Tramways Act, 1870, in so far as may be necessary in order to adapt the lines for electrical traction under either the "conduit" or "trolley" or "surface-contact" system. Generating stations will be established at Streatham Hill, near the St. Pancras Workhouse (St. Anne's Home), at their Camberwell tramway depot, and at Greenwich (on the west side of Trinity Hospital Almshouses).

ELECTRIC LIGHTING, &C., MIDDLESBROUGH.—A Local Government Board inquiry into an application of the Middlesbrough Corporation to borrow 36,000*l.* for purposes of electric lighting, and 4,000*l.* for sewerage and drainage purposes, was held in the committee-room, Municipal Buildings, Middlesbrough, on the 15th inst., before Mr. W. O. E. Meade-King, M.Inst.C.E., of London. Mr. A. Sockett, Deputy Town Clerk, and Mr. F. Baker, Borough Engineer, attended on behalf of the Corporation, and in the inquiry respecting the electric lighting, the consulting electrical engineer to the Corporation (Mr. Hammond) and Mr. Robert France, of Bradford, architect for the buildings, were present.

NOISELESS PAVEMENT.—We have taken an opportunity of examining the pavement of the forecourt of the new Claridge's Hotel, which has been laid with the North British Rubber Company's slabs, and appears an exceedingly satisfactory form of pavement for deadening the noise of carriages. It is made of a special quality of hard rubber, about 1 in. thick, and though the first outlay is expensive, it is claimed by the makers that it is so lasting as to

be economical in the long run. It is at all events very effective for its purpose.

THE CITY OF LONDON DIRECTORY.—The twenty-ninth annual edition of this well-known directory, published by the proprietors, Messrs. W. H. & L. Collingridge, Aldersgate-street, is accompanied as usual by a large folding map, and the complete work forms an excellent guide to the City. The Directory, which appears to have been brought well up to date, contains a streets guide, a commercial directory, trades guide, Corporation directory, public companies directory, biographical directory, &c. Several new features have been added to this edition, comprising, amongst others, lists of the metropolitan hospitals; also additional information relating to the Stock Exchange. The section relating to the public buildings of the City has been enlarged, and now contains fuller details as to the history and structure of the bridges, the better known of the City churches, and a brief account of some of the halls of the livery companies. The buildings in the streets which were affected by the Cripplegate fire of November, 1897, viz., Hamsell-street, Jewin-crescent, Jewin-street, and Well-street, have, to a great extent, been rebuilt, and many of the original occupiers have returned to their holdings, some of the premises are let to new tenants, while others are still unfinished or unlet. Beyond the rebuilding of the above-named streets, improvements in the streets and bye-ways of the City during the past twelve months, have been carefully noted upon the map. Ducksfoot-lane no longer retains that name, but has become part of Lawrence Pountney Hill. Redgate-court, Minories, has disappeared, the site being taken over by the London and Blackwall Railway Company. The new street, to be known as "Lloyd's-avenue," connecting Fenchurch-street and Crutched Friars, is shown on the map, on which is also indicated the route of the City and South London Railway, showing the two City stations, Moorgate-street (entrance from Finsbury Pavement) and King William-street.

THE NEW BRIGHTON TOWER.—Mr. W. F. Taylor, Q.C., the arbitrator appointed under the order of Mr. Justice Bigham to investigate the matters in dispute in an action brought by Mr. F. W. Maxwell, architect, of Manchester, against the New Brighton Tower and Recreation Company in respect of fees and commission due to him as architect of the Tower and other works at New Brighton, held his first sitting at the Manchester Assize Courts recently. Mr. Overend Evans, instructed by Messrs. Hockin, Raby, & Beckton, of Manchester, appears for the plaintiff, and Mr. Horridge and Mr. Keogh, instructed by Messrs. Simpson, North, Harley, and Birkett, of Liverpool, for the defendant company. At the rising of the court the proceedings were adjourned to the 27th, 28th, and 29th inst. at Liverpool.

WIMBLEDON HOUSE.—The materials of Wimbledon House will be sold at auction on Monday next. The house, built *circa* 1750, and with grounds originally laid out by Bushell, was sold by John Bond Hopkins to M. de Calonne, Comptroller-General of Finance at the French Revolution of 1789, from whom Lord Gower bought the property for 15,000*l.* a few years afterwards. It was for some time occupied by Joseph Marryat, M.P. for Sandwich, father of the novelist, and until 1854, by his widow. The beautiful grounds, renowned for their specimens of American trees, beeches, and cedars, and for a flower garden of three acres, are fully described in Loudoun's "Suburban Gardener."

TELEPHONES ENABLING BILL.—Tunbridge Wells Town Council has already made application for a local license to establish a service of its own in the telephone area of Tunbridge Wells, and this by an unanimous vote. The Council further strongly expressed its opinion that Mr. Hanbury's proposed limitation in favour of County Boroughs, which would exclude all towns under 50,000 population, should be altogether withdrawn.

LECTURE ON "MOSAICS": SCHOOL OF ARTS AND CRAFTS.—Mr. H. J. Powell lectured on Friday last week at the Central School of Arts and Crafts, on "Mosaics." A subject of so much interest at the present time ought to have attracted a larger attendance. As it was the lecturer addressed a few students and teachers of the School. Mr. Powell said that his official position was that of colour-mixer to Sir William Richmond on the mosaics at St. Paul's; therefore his remarks were of a technical rather than of a critical nature, addressed to fellow-craftsmen rather than to the public, and relating to matters of history and methods used for obtaining results. Sir William Richmond, whatever may be thought of some of his work at St. Paul's in regard to the treatment of Wren's architecture, must have the credit of having been the first modern artist who has used mosaic with any success in this country, and of having practically revived what was a lost art. There were experiments made in the sixties, when the pendentives in the dome were decorated with mosaics. These designs were executed in Venice, and sent over here to be put up in sections. In 1890 Sir William Richmond undertook the decoration of the choir of St. Paul's, and he determined it should be done by English craftsmen with English materials. Mr. Powell gave some interesting information on the methods employed, the difficulty of educating men, and the experiments made. Nearly all the fragments of ancient mural mosaic found are in glass, though marble, bone, ivory, and mother-of-pearl were also used. The mosaics at St. Paul's are in glass. At first a very large number of colours were used, but it has been found that a restricted palette produces a better harmony; the effect of atmosphere and distance blending contrasting colours better than any system of half-tone or stippling. The decline of the art of mosaic is to be traced to this very misunderstanding, overcome by Sir William Richmond. Craftsmen who understood the extent and limit of their materials were supplanted by great artists like Titian, because the public wished their great masterpieces inscribed on their public buildings, and mosaic was the method chosen. The mosaics at St. Peter's are an example of how the meaning and effect were lost by copyists endeavouring to produce the exact effect of an artist's oil picture. The whole surface was carefully rubbed over, smoothed down, and the joints coloured or made invisible, producing a hard surface in place of the rich texture proper to mosaic.

APPOINTMENT OF SANITARY INSPECTOR.—The Local Government Board have sanctioned the re-appointment of Mr. G. T. Billing as a Sanitary Inspector in Holborn.

THE PRICE OF GAS IN LONDON.—The Select Committee recently appointed to inquire into the powers of charge conferred by Parliament on the Metropolitan gas companies is composed of the same members as was the Committee appointed last year for the same purpose, save that Sir James Rankin and Mr. Pirie have taken the places of Sir John Dorington and Mr. Brigg. We understand that the Committee has power to compel the attendance of any person, or the production of any papers or books that may be necessary for the purposes of the inquiry.

LONDON SKY SIGNS ACT, 1891.—The Building Act Committee of the London County Council reported as follows at Tuesday's meeting of the Council:—"By Section 129 of the London Building Act, 1894, it is provided that licences granted under the provisions of the London Sky Signs Act, 1891, and renewed under the same Act may, on the expiration of the period for which such renewals were granted, be renewed for one further period of two years, but not longer. As the signs which were licensed under the Sky Signs Act, 1891, have now all been removed, we present a report as to the general working of the Act. It may be remembered that the Act, the object of which was the removal of sky-signs as being both unsightly and dangerous, contained provision for sky-signs to be inspected, and when found to be securely constructed, to be licensed for a limited period. The opportunity thus offered by the Act was generally taken advantage of by the owners of large signs, but where the signs consisted of only a single row of open letters, the owners in most cases removed them rather than pay the fee of two guineas for inspection every two years. The fees received by the Council for these licences amounted in all to 111*l.* 10s., the number of licences issued being as follows—For the first period (1891-93), 177 licences; for the second period (1893-1895), 148 licences; and for the third and last period (1895-97), 127 licences. During the first period one licensed sign was blown down, and during the second period two licensed signs were partially blown down. The total number of cases dealt with during the whole period was 813. The amount of litigation which has occurred in connexion with these signs has been comparatively small. In only fifteen cases has it been found necessary to take out summonses in order to enforce removal of the signs, and in only one case has it been necessary for the Council to exercise its power of removing a sky-sign. In one case the High Court, on appeal, quashed the conviction of the police-magistrate on the ground that there was no evidence that the sign was a sky-sign within the meaning of the Act. In another case, before the hearing of the summons, the owner backed up his sign with zinc sheeting, and then successfully contended that it was not visible against the sky. The immediate result of this action was that a similar course was resorted to in fifty-three other cases, and this, as will be remembered, brought about the further provisions as to sky-signs contained in the London County Council General Powers Act of 1893, dealing with close advertisements."

ELEPHANT AND CASTLE IMPROVEMENT. — A claim for compensation arising out of the improvement of the "Elephant and Castle" was heard before Mr. Loveland and a jury at the London County Sessions (Newington Sessions) on the 17th inst. Mr. Meakin, the lessee of the "Elephant and Castle" Headway, claimed to be compensated by the London County Council for the loss of 1,046 ft. of frontage which had been appropriated by the Council for the widening of Walworth-road and Short-street. The land is vested in trustees for the benefit of the poor of Newington. The leases fell out about a year ago, and the land was re-leased to Mr. Meakin. It was decided to rebuild the "Elephant and Castle" public-house and the shops upon the headway. The local authorities suggested that this was a convenient opportunity to effect the widening of Walworth-road, and eventually the plans were amended, and the area of the headway was reduced. The freeholders—the trustees—had been compensated, and the question for the Court to decide was as to the extent to which the interests of the lessee should be recognised. The jury awarded the claimant 7,912*l.*, compensation and expenses.—*Daily Chronicle.*

MEMORIAL TO SIR H. DOULTON.—For more than twenty years the late Sir Henry Doulton was a Governor and Almoner of St. Thomas's Hospital. On Tuesday a memorial to him, erected by Mr. Henry Lewis Doulton and Sir Henry's other children, was unveiled by the Bishop of Rochester—the memorial taking the form of three panels in the reredos of the Hospital Chapel. The panels are in terra-cotta, and the designer was Mr. G. Tinworth.

"THE STUDENTS' COLUMN."—Our Students' Column article (Architectural Hygiene) is, for want of space, held over until next week.

## *CAPITAL AND LABOUR.*

HULL JOINERS.—The Hull Master Builders Association has under consideration an application from the joiners for an increase in their pay from 8½d. per hour to 9d. Although no definite decision has been come to it is stated that the masters are opposed to granting the demand on the ground that the present rate at Hull is higher than the pay in many of the Yorkshire towns.

SUNDERLAND BRICKLAYERS' LABOURERS.—The Sunderland District Building Trades Association, after considering the application of the bricklayers' labourers for an advance of wages from 6½d. to 7d. an hour, and alterations to the working rules, have decided that at present no concessions can be made, as the rate of wages paid to the labourers in Sunderland, they maintain, is considerably higher than many of the surrounding towns. They also do not see any necessity to depart from the working rules as already signed.

JOINERS AND CARPENTERS' STRIKE AT GRIMSBY.—The Grimsby joiners and carpenters, at a mass meeting on Tuesday, decided to strike for an increase of pay from 6½d. to 8d. per hour from April. This will affect 200 men.

## *LEGAL.*

### ACTION BY BUILDERS REFERRED TO OFFICIAL REFEREE.

THE case of Mowlem & Co. *v.* the Army and Navy Auxiliary Supply, Limited, came before Mr. Justice Mathew, sitting without a jury, in the Queen's Bench Division on the 17th inst. This was an action brought by Messrs. Mowlem & Co., the well-known contractors and builders, against the Army and Navy Auxiliary Supply, Limited, to recover 720*l.* for extra work done in connexion with a building contract. The defence was a denial of liability, and a plea that the plaintiffs were liable to pay the defendants certain penalties in consequence of the work not having been executed within the specified time.

Mr. English Harrison, Q.C., and Mr. Hudson were counsel for the plaintiffs; while Mr. Joseph Walton, Q.C., and Mr. MacIntyre represented the defendant company.

Mr. Harrison, in opening the case, stated that his clients entered into a contract for 25,800*l.* for the erection of a large building, which was an addition to the existing buildings of the defendants. The contract, which was dated June 10, 1895, limited the time within which the work was to be completed. What happened was that during the time of the execution of the work possession was not given to the plaintiffs of various parts of the buildings for the purpose of executing the work and large additions were made after the time limited for the performance of the contract. The plaintiffs therefore said that having by the direct action of the defendants been prevented from completing within the specified time the latter were not entitled to have their penalties. The defendants claimed to deduct from the amount due to the plaintiffs the sum of 720*l.* being penalties at the rate of 10*l.* a day for each day beyond the period specified for the completion of the contract, and it was this amount which was in dispute between the parties.

Mr. Joseph Walton, at this stage of the case, interposed by saying that, in his opinion, the case could only be tried by going into great detail, and it would be much better to try it before the Official Referee, Mr. Pollock, than attempt to deal with it in Court.

Mr. Harrison assenting with this view, it was agreed, with his lordship's sanction, that the case should be referred for trial before Mr. Pollock.

Order accordingly.

### CLAIM UNDER THE WORKMEN'S COMPENSATION ACT:

#### IMPORTANT DECISION IN THE COURT OF APPEAL.

THE case of Wood *v.* W. Walsh & Sons came before the Court of Appeal, composed of Lords Justices A. L. Smith, Collins, and Romer, on the 18th inst., the case raising an important question under the Workmen's Compensation Act, 1897, as applying to painters and builders engaged outside of a house by means of ladders, viz., whether the employment is on, in, or about a building which is being "repaired" by means of a "scaffolding" within the meaning of Section 7, Sub-section 1 of the

Act. The appeal came before the court from the decision of the judge at the Leeds County Court upon a case stated by an arbitrator appointed to settle a claim for compensation under the Workmen's Compensation Act, 1897. The claim was made by the widow of a deceased workman who was killed while in the employment of the appellants, Messrs. Walsh & Sons, painters and decorators, at Leeds. The workman at the time of the accident was employed with several other men in cleaning and painting the outside of a house, over 30 ft. in height, at Leeds. The work was being done by means of five or six long ladders, and consisted of removing the dirt and blisters, making good the woodwork with putty and the stonework with hall-plaster or cement, and afterwards painting the surface. Nothing was being done to the building except preparation for painting and the actual painting. The deceased man was standing upon the rung of one of the ladders which was resting against the wall, engaged in puttying and painting, when the rung of the ladder broke and he fell to the ground and was killed. It appeared that one of the men at work had placed a plank with one end resting upon and tied to the rung of one of the ladders, and with the other end resting upon a window-sill, and stood upon this plank to work, but the deceased man had not used this plank. The arbitrator held that the building was not being "repaired" within the meaning of Section 7, Sub-section 1 of the Act, and that neither the ladders nor the arrangement of the plank resting on the ladder and the window-sill were "scaffolding" within the meaning of that Section. He held, therefore, that the deceased man was not killed while engaged in any employment within the Act, and made his award in favour of the employers, but submitted the following two questions of law for the decision of the County Court judge:—(1) Whether the building was being "repaired" within the meaning of the Act; and (2) if so, whether it was being repaired by means of a "scaffolding" within the meaning of the Act. The County Court judge reversed the decision of the arbitrator on both points, and awarded the claimant an agreed sum of 237*l.* 18s. Hence the present appeal by the employers.

Mr. C. A. Russell, Q.C., and Mr. Clarke Hall, appeared for the appellants; and Mr. Robert Wallace, Q.C., and Mr. Horace Marshall, for the claimant.

Their Lordships, at the conclusion of the arguments, held that the deceased man was not employed on, in, or about a building which was being constructed or repaired by means of a scaffolding within the meaning of Section 7, Sub-section 1 of the Act, and that therefore the claimant was not entitled to compensation under the Act.

The appeal was therefore allowed.

## OBSTRUCTION OF ANCIENT LIGHTS IN LEEDS.

AWARDS have been given in the arbitration cases, recently heard, with respect to the obstruction of ancient lights by the directors of the Metropole Hotel Company, Limited, in erecting their hotel in King-street, Leeds. There were two cases. In the one, it was alleged that the premises of Mr. F. C. Kitchin, and in the other those of Mr. C. S. Rooke, had been injuriously affected. Mr. Richard Horsfall, architect, of Halifax, has awarded 425*l.* and costs to Mr. Kitchin, and Mr. Eli Milnes, architect, Bradford, has awarded 400*l.* and costs to Mr. Rooke. Both claimants were represented by Mr. Thomas Winn, architect, whilst Mr. J. W. Connon, architect, appeared for the defendant company. It was arranged that no legal gentleman should take part in the inquiries, but Messrs. Simpson & Simpson prepared the case for Mr. Kitchin, and Messrs. Rooke and Midgley acted in a similar capacity for Mr. Rooke.—*Leeds Mercury.*

## DANGEROUS STRUCTURE CASE.

IN the Queen's Bench Division on Saturday last, before Mr. Justice Wills, Crisp *v.* the London County Council was an action brought by Mrs. Martha Crisp, a married woman, against the London County Council to recover damages for personal injuries alleged to have been sustained through the negligence of the defendants' servants. Defendants denied liability.

Mr. Holloway appeared for the plaintiff, while Mr. Dickens, Q.C., and Mr. Daldy represented the defendants.

It appeared that in the latter part of 1896 it was discovered by the officials of the London County Council that a house in Mansion House-street, Kennington Park-road, was in a dilapidated state. They condemned it as a dangerous structure, and a notice was served upon the owner calling upon him to repair the premises. He neglected to do the work, and a magistrate made an order directing him to take down so much of the building as was dangerous. The owner also failed to comply with this order, and the County Council, under their statutory powers, proceeded to do the necessary work. They erected a hoarding in front of the house and shored up the building, for which purpose they removed some of the paving stones inside the hoarding. When the premises had been restored to a habitable condition the owner was charged by the County Council not only for the work done, but also for the hoarding. Subsequently, somebody, presumably the owner, removed the hoarding, but failed to replace the paving stones. On the evening of August 7, 1897, plaintiff was walking with her husband along Mansion House-street when her foot caught in a hole caused by the removal of one of the paving stones. She was thrown on the ground, receiving a severe injury to her hip. The case was tried before his lordship and a special jury a short time since, when the jury assessed the damages at 40*l.* It was now contended by the County Council that they were entitled to judgment, as they had been guilty of no negligence. They said that they had power to erect a hoarding without the licence of the Vestry, that the hoarding was in a safe condition when it was transferred by them to the owner of the house, and that they could not be held liable for the act of a person who was not their agent. For the plaintiff, it was argued that the County Council were guilty of negligence both in erecting the hoarding without the licence of the Vestry, and in omitting to replace the paving stones when the hoarding was removed.

Mr. Justice Wills, in delivering judgment, said he was satisfied that it was the intention of Parliament that the London County Council should have power to deal with dangerous structures by a special code of legislation, to which the general legislation as to giving notice to the Vestry and so on was not intended to be applicable. When the work of removing the dangerous structure had been done the responsibility of the County Council ceased, and the owner of the property had to perform his ordinary duties. If he did not take down the hoarding and replace the paving stones he was liable, and nobody else, for any damage that might ensue. He therefore gave judgment for the defendants, with costs. —*Daily News.*

## THE ABBEY MANSIONS.

THE builder of Abbey Mansions, Orchard-street, Westminster, William Rose-Rickard, appeared before Mr. Marsham at Westminster Police-court on the 20th inst. to summonses with respect to alleged breaches of the Building and Dangerous Structures Acts. Mr. Dolby appeared for the London County Council; Mr. Horace Avory for the defendant; and Mr. Marshall Hall, Q.C., for the mortgagees. The proceedings really had reference to the condition of the building at the early part of last year. It will be remembered that Mr. Marsham dismissed summonses supported by the District Surveyor, holding that the buildings, as Crown property, were exempt from proceedings. A special case was stated, and the entire matter was now remitted to the magistrate, his view of the matter as to Crown property not being upheld by the Superior Court. Pending the decision of the High Court there were further proceedings before Mr. Marsham, and the matter was referred to arbitration. The Arbitrator decided in favour of the views of the District Surveyor, and the County Council now asked for the costs of these proceedings, it having cost 49*l.* to take up the arbitrator's award. A mass of evidence having been taken as to the condition of the premises last year, and as to the alleged excessive height, Mr. Marsham said he should not give judgment that day as he proposed to go and see the buildings in question. He would give his decision in a week's time.—*Morning Post.*

## MEETINGS.

FRIDAY, MARCH 24.

*Architectural Association* (*Discussion Section*).—Mr. L. Jacob on "Arbitration." 7 p.m.

SATURDAY, MARCH 25.

*Architectural Association.*—Visit to the Fire-testing Station of the British Fire Prevention Committee. North Bank, Regent's Park (St. John's Wood Station). 3 p.m.

*Institution of Junior Engineers.*—Visit to the Testing Station of the British Fire Prevention Committee at North Bank, Regent's Park. 3 p.m.

*Royal Institution.*—The Right Hon. Lord Rayleigh on "The Mechanical Properties of Bodies." VII. 3 p.m.

*Sanitary Institute (Demonstrations for Sanitary Officers).* — Inspection at the Sutton Sewage Works. 3 p.m.

*Edinburgh Architectural Association.*—Visit to houses, Mortonhall-road and Grange House.

MONDAY, MARCH 27.

*Sanitary Institute* (*Demonstrations for Sanitary Officers*).—Inspection at the Metropolitan Cattle Market, York-road, N. 3 p.m.

TUESDAY, MARCH 28.

*Institution of Civil Engineers.*—Mr. Robert Abbott Hadfield on "Alloys of Iron and Nickel." 8 p.m.

*Architectural Association of Ireland.*—Mr. Walter G. Doolin, M.A., B.E., on "Two A.A. Excursions," being a description of the Architectural Association of Ireland Excursion for 1898 to Glendalough, and the recent Tour of the London Architectural Association in Warwickshire. The lecture will be illustrated by a large number of limelight views, from photographs specially taken by the lecturer. 8 p.m.

WEDNESDAY, MARCH 29.

*Sanitary Institute* (*Lectures for Sanitary Officers*).—Demonstration of book-keeping as carried out in a Sanitary Inspector's office. By Mr. Albert Taylor. 8 p.m.

*Builders' Foremen and Clerks of Works' Institution.*—Quarterly meeting of the Directors. 8 p.m.

FRIDAY, MARCH 31.

*Glasgow and West of Scotland Technical College* (*Architectural Craftsman's Society*).—(1) Mr. James Lochhead on "Architect *v.* Contractor." (2) Mr. Charles E. Monro on "The Public and Architecture." 8 p.m.

## RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

*Open to Opposition until May 15.*

[1898].—735, Taffs & Hill; and [1899] 2,654, Joseph, Switches for Electrical Light Installations. 5,423, Goddard, Automatical Electrical Switch for Hoists and Cranes. 5,671, Cameron, Commen, & Martin, Treatment of Sewage, &c., and Control of the Flow of Gas therefrom. 5,703-4, Pieper; 8,988, Alker & Mennessier; and 16,464, Henneton; Electrodes for Secondary Batteries or Accumulators. 6,098, Cattanach, Machine for boring Rock, Dressing and Breaking Stone, &c. 6,171, Beldam, Manhole, Inspection, and Similar Coverings. 7,353, Bastow, Pivotted Windows. 7,519, Nordquists, Door Closer and Holder. 7,889, "Francis, Fraction, Area, and Geometry Apparatus." 7,945, Wolfers & Hannemann, Artificial Asphalte. 8,786, Youlten, Stay for Casement Doors and Windows. 9,123, Brown, Testing Road Surfaces. 9,601, MacCoy, Workmen's Time-Recorders. 9,912, Altman, Chimney for Incandescent Gas, Electrical, and Oil Lights. 9,954, Taylor, Gas-producing Apparatus. 10,036, Goldenfarb, Window-cleaning Guard. 10,141, Vözös; and [1899] 1,796, Hilberg, Generation of Acetylene Gas. 10,427, Ducat, Filters for Sewage Purification by Bacterial Action, 10,463, Crosthwaite; and [1899] 2,648, Cæsar, Heating Stoves. 10,515, Epstein, Dust and Mud Collecting Vans. 10,521, Cutler, Indicating or Recording the Level of Water and other Liquids. 10,610, Benson, Walls. Floors, &c. 10,688, Kuphal, Chimney Cowls. 10,768, Faulds, Stone-planing Machines. 10,833, Oates, Waste Water-closets. 11,036, Richter & von Herz, Device for Extinguishing the Fire on Lack of Water in the Boiler. 12,333, Zeinwoldt, Adjustment of Axles for Band-saw Pulleys. 12,807, Watson, Gow, & Co. and Robertson, Stove and Range Construction. 12,285, Snyder, Generating and Burning Gas from Liquid Hydro-carbons. 18,150, Evens, Window Sashes for Ventilation. 20,180, Cains and Grant-Morris, Machines for Facing or Planing Wood, &c. 20,586, Hamilton, Framework and Packing of Doors, Windows, Hatches, Ports, &c. 23,385, Möller & Schaefer; 27,618, Schmidt; and [1899] 707, Electro-Lamp Co., Acetylene Lamps. 27,164, Hanf, Water-Gauge. [1899] 950, Wundrack, Kilns. 1,091 Seeberger; and [1899] 1,656, Smith & Cruikshank, Lifts and Elevators. 1,336, Marshall, Road Scarifiers. 1,478, Fischer, Jointing Stove Pipes to Chimneys. 1,511, Hassenpflug, Levels and Clinometers. 1,784, Widdershoven, "Tunnel." 2,223, Keyes, Apparatus for Lining Pipes. 2,297, Jonet, Raising Water from Wells, &c. 2,400, Perry & Weir, Cocks or Faucets. 2,613, Davis, Ventilation of Water-closets, Urinals, &c. 2,703, Dinkey, Resistance Panels or Grids. 2,745, Callaway, Conduits for Electrical Wires and Cables. 2,814, Richter & Bopp, Non-return Valve for Air and Gases. 2,825, Claremont & Royce, Signals to Indicate the Approaching Exhaustion of Carbons in Electrical Arc Lamps. 2,994, Rzepka, Electrical Arc Lamps. 2,987. White, Drums and other Liquid Containers. 3,029, Hovell, Portable Furniture.

ABSTRACTS OF PATENTED INVENTIONS.

26,081.—PIPE COUPLINGS: *F. J. Bernhardt & M. B. Rosenberry.*—For disconnectible couplings, spring catches, carried upon the female end, engage with the rear face of a (preferably) phosphor bronze ring screwed upon the male end. The catches are made of levers with dogs pivotted on them, so as to relieve the lever pivots from strain. The ring is tapered and fits over a cup-leather, to which the fluid has access through holes, and which is let into the female end. For hose pipes the shank of the coupling receives the hose pipe, which is there secured by soft metal washers expanded into corrugations on the shank's interior.

26,093.—GRATES, FUEL HOLDERS, AND ECONOMISERS: *F. M. Hamilton & C. Gilbert.*—Plates bolted together, and having rods bolted to them which abut against one side of the grate, form a partition for limiting the effective space of the grate; the plates are serrated below, to admit air, and the rods and teeth are notched so that they may be broken off to fit the grate. The plates—one of which has converging side edges—have slots and bolt-holes, by means whereof they can be adjusted to one another within the grate.

26,124.—DRESSING AND WORKING STONE: *G. Anderson.*— In this contrivance, which is devised for use in machines wherein a reciprocating table carries the stone, the crosshead which carries the tools is counterbalanced, weights working upon slightly inclined guides are connected to the cross-slide by chains that pass over pulleys in brackets above.

26,168.—SPIGOT AND SOCKET JOINTS: *J. H. Sutton.*— The inventor's object is to obtain the true axial alignment of the pipes; he forms on the pipe's spigot end some projections whose height is equal to one-half of the difference between the external diameter of the spigot and the internal diameter of the socket, and whose width is less than the socket's; the joint is filled in the ordinary manner, the socket being kept in position upon its bed by external projections fashioned upon it.

26,202.—INCANDESCENT GAS AND OTHER LAMPS: *A. Martini.*—In order to strengthen the mantles, and minimise fusion and chemical change, is devised a solution of compounds of potassium, sodium, lithium, rubidium, cœsuim, or tin, in combination with the rare earths, or with platinum or uranium, and the impregnated mantle is incinerated and again impregnated.

26,278.—ROOFING TILES: *F. Latham.*—At each tile's bottom edge is a weather flange, which overhangs a flange at the upper edge of the tile next below, and a roll on the tile's one side fits over a hooked rib of the next tile in the same row, the rib being cut away at an angle at both ends, and the roll being similarly cut away at its upper end, in order that the courses may overlap. Hanging nibs under the upper edges engage with the laths. The tiles' lower edges are bevelled for carrying off water, and the weather flanges protect from rain the nails driven through holes in the other flanges.

26,282.—LOCKS AND LATCHES: *W. B. Bust*—When the door has by any means become separated from the striking-plate, the projection of the latch bolt from the case is made adjustable to let the bolt engage with the plate, a toothed quadrant and a rack operate the bolt, which also has a lug to engage a stop adjusted by means of a screw. The stop's bent end engages behind the bolt

spring, whereby when the bolt is adjusted uniform pressure is maintained. To render the bolt and lock reversible, the lug and rack are duplicated, the locking-bolt is guided by a pin or otherwise, and a spring controls a pivoted tumbler which locks the bolt.

26,306.—SWITCHES FOR TRANSFORMERS, RESISTANCES, STORAGE BATTERIES, &c.: *British Thomson-Houston Co. & H. M. Hobart.*—The invention is intended to provide a fine adjustment; the turns of a transformer or resistance coil are alternately connected with contacts arranged in two rows between which are set conducting-bars connected by a resistance from whose middle point a wire leads to the main, bridge-pieces slide along the bars and connect alternately with the contacts in either of the rows.

26,354.—CLIPS FOR ROPES: *J. Gill.*—Of the two jaws which grip the rope one is moved under an incline by a lever to which it is connected by a pin and slot, the haulage hook is attached to the lever which, together with the incline, is mounted upon the plate that carries the other jaw, and the lever is held down by a pawl.

26,369.—COIN-FREED GAS METERS: *J. Anderson.*—After the insertion of a coin, the hollow slotted spindle is turned together with the rotation of the handle, and by means of a projection upon the spindle another spindle is rotated so as to screw itself through the boss of a bevel wheel and to carry with it a rod which is in connexion with the gas valve. Upon the passage of gas the spindle and valve are screwed back again by means of suitable gearing, the coin is kept in position by a weighted lever at the bottom of the receiver; for registering, the gas-valve rod has a projection into a helical groove upon a spindle with a pointer, and when the maximum number of coins is inserted a projection on that spindle rocks a lever into the coin-shoot. The inventor has patented a somewhat similar machine under No. 26,370.

26,386.—TELEMETERS: *J. T. Brown.*—A three-armed frame carries a slotted quadrant, which is graduated in distances and degrees, and to one angle of the frame is pivotted a pointer fitted with two index figures that traverse the quadrant, a steadying-lip being provided; to determine a distance, the pointer and arm are directed towards the object.

26,450.—JOINTING FOR PIPES: *J. Hall.*—The pipes (iron or earthenware) are laid end to end, and over the joint (covered with wrapping) are placed two sleeves that fit one another, and are slotted so that two holes are left for the filling; if the sleeves are made of paper, or a similar substance, wire netting can be inserted to give support to the cement.

26,596.—STONE SAWING: *F. Knobel.*—In a machine that has an endless cutting cable, the latter runs upon guide-sheaves on the frame, whereof the lower pair are adjustably mounted on brackets lifted by pinions and racks at the beginning of the cut, and then dropped. A truck, running upon rails whose inclination can be altered, carries the driving-pulley and its motor; at the machine's other end may be put a second tension carriage. The carriages are lifted up their inclines by the engagement of spur gearing, worked by hand, with a rack between the rails, whilst a pawl and ratchet prevent them from being pulled forwards suddenly.

26,740.—VALVE DISCHARGE WATER-WASTE PREVENTERS: *A. E. Parnacott.*—A closed tank, wherein air is compressed during the process of filling, delivers the flush, and the elbow of the outlet is bolted into a socket at the bottom of the tank, a flange and washer being disposed so as to make a seating for a thimble-shaped valve, which slides by means of its hollow stem on the tube up which passes a rod for raising the valve.

26,800.—PAINTS: *C. J. Grist.*—After having been immersed in a drying oil, partially oxidised by being boiled with litharge, the jute or other fibre is dried in a hydro-extractor by hot air, then it is ground and mixed with pigment, boiled with ketone, and mixed with a liquid obtaine by heating shellac, gum, and resin with barytes or other dryer and spirit; for an anti-corrosive paint an arsenical or similar salt is added instead of colouring matter.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

March 8.—By WYATT & SON (at Chichester).

| | |
|---|---|
| Stoughton, Sussex.—A cottage and nearly half an acre, u.t. 140 yrs., g.r. nil | £100 |

March 9.—By HUMBERT & FLINT.

| | |
|---|---|
| Dartford, Kent.—2, High-st., f. r. 60*l.* | 1,360 |
| 1 to 9, 21 to 27 (odd), Hythe-st., f., r. 326*l.* | 7,625 |
| 43 to 59 odd), Albion-ter., f. | 780 |
| 56 to 66 (even), St. Alban's-rd., f. | 1,400 |
| Miskin-rd., Hazlehurst, f., r. 50*l.* | 1,170 |
| Stone, Kent.—Main-rd., Commerce House f., r. 30*l.* | 610 |
| 1, Elm-rd., u.t. 88 yrs., g.r. 2*l.* 10s. | 170 |

March 10.—By F. J. BISLEY & SONS.

| | |
|---|---|
| Old Kent-rd.—13 and 14, The Triangle, f., r. 46*l.* 16s. | 600 |
| Rotherhithe.—2, Aspinden-st., u.t. 55 yrs., g.r. 4*l.* | 480 |
| 33, Union-rd., u.t. 61 yrs., g.r. 4*l.* | 400 |

By FURBER, PRICE, & FURBER.

| | |
|---|---|
| Holborn.—34 and 35, Great Queen-st., area 2,211 ft., f., r. 172*l.* | 4,490 |
| Poplar.—243, High-st., f., r. 32*l.* | 460 |
| Brighton, Sussex.—19, Devonshire-pl., f., r. 30*l.* | 460 |

By MONTAGU & ROBINSON.

| | |
|---|---|
| Clapham.—King's-rd., f.g.r. 45*l.*, reversion in 25½ yrs. | 2,080 |
| Camberwell.—27, Brymer-rd., u.t. 82 yrs., g.r. 8*l.* | 300 |

By MILLAR, SON & CO.

| | |
|---|---|
| St. John's Wood.—33, St. John's Wood-rd., area 10,000 ft., f. | 5,000 |

By RIDER & SONS.

| | |
|---|---|
| Notting Hill.—Portobello-rd., St. Michael's Club, f., r. 100*l.* | 1,750 |
| Bayswater.—9, Lonsdale-rd., u.t. 44 yrs., g.r. 6*l.* | 500 |

By A. DOWELL (at Edinburgh).

| | |
|---|---|
| Morven, Argyllshire.—The Estate of Glenmorven, area 9,354 a. | 15,700 |

March 11.—By PICKERING & NIGHTINGALE (at Chester).

| | |
|---|---|
| Whitby, Cheshire.—Heath Farm, 52 a. 1 r. 22 p., f. | 3,000 |

By TALBOT & WHITE (at Southend).

| | |
|---|---|
| Southend-on-Sea, Essex.—Alexandra-rd., Melrose and Westcliff, f., r. 107*l.* | 1,900 |

March 13.—By MIDDLETON & CRACKNELL.

| | |
|---|---|
| Hampstead Heath.—South Hill-pk., &c., f.g.r. 76*l.*, reversion in 85¾ yrs. | 2,270 |
| Hampstead.—19, Lawn-rd., u.t. 52 yrs., g.r. 11*l.* 11s. | 685 |

By WEATHERELL & GREEN.

| | |
|---|---|
| Strand.—13, Drury Court, f., r. 45*l.* | £900 |
| Brixton.—17, Lothian-rd., f., r. 41*l.* 12s. | 500 |

By E. FERGUSSON TAYLOR (at New Barnet).

| | |
|---|---|
| New Barnet, Herts.—Bulmer-rd., Warwick House and 2 r. 8 p., f. | 1,525 |
| Station-rd., a freehold building site | 425 |
| Barnet, Herts.—Woodville-rd., &c., ten plots of building land, f. | 700 |

By J. H. BRADWELL & SON (at Mansfield).

| | |
|---|---|
| Farnsfield, Notts.—Enclosures of land, 144 a., f. (in lots) | 8,099 |

By R. & J. R. MITCHELL (at Cockermouth).

| | |
|---|---|
| Aspatria, Cumberland.—The Arkleby Mill and Farm Estate, 82 a. 3 r. 12 p., f. | 6,000 |

By CUMBERLAND & SONS (at Long Eaton).

| | |
|---|---|
| Long Eaton, Derby.—Enclosures of land, 36 a. 1 r. 15 p., f. | 2,215 |
| Two plots of building land, area 22,932 yds., f. | 1,910 |
| Two enclosures of land, 26 a. 2 r. 4 p., f. | 2,600 |

March 14.—By HARDS & BRADLY.

| | |
|---|---|
| Rotherhithe.—52 and 53, Verney-rd., u.t. 78 yrs., g.r. 10*l.* | 400 |
| Greenwich.—13, 15, and 15a, South-st., u.t. 80 yrs., g.r. 100*l.*, r. 165*l.* | 350 |

By F. MILLER & REID.

| | |
|---|---|
| Pimlico.—116, Tachbrook-st., u.t. 39¾ yrs., g.r. 8*l.*, r. 55*l.* | 525 |

By ROGERS, CHAPMAN, & THOMAS.

| | |
|---|---|
| Pimlico.—62, Hugh-st., f., r. 50*l.* | 930 |
| 13, Claverton-st., u.t. 32½ yrs., g.r. 10*l.* 10s. | 650 |

By RUTLEY, SON, & VINE.

| | |
|---|---|
| Holloway.—Anson-rd., i.g.r. 75*l.*, u.t. 83 yrs., g.r. 25*l.* | 1,165 |
| Haverstock Hill.—17, Maitland Park-rd., u.t. 53 yrs., g.r. 5*l.*, r. 45*l.* | 490 |

By DEBENHAM, TEWSON, & CO.

| | |
|---|---|
| Upper East Smithfield.—Nos. 3 and 4, f., r. 100*l.* | 1,550 |
| Hackney Marshes.—Temple Mills-lane, freehold allotment gardens, 3 r. 32 p. | 300 |
| Silvertown.—Drew-rd., &c., a block of building land, area 14,600 ft., f. | 350 |

By HUMBERT & FLINT (at Watford).

| | |
|---|---|
| Watford.—Holywell-road, 16 plots of building land, f. | 482 |
| Ridge-st., &c., eight plots of building land, f. | 231 |
| Leavesden-rd., &c., 22 plots of building land, f. | 1,115 |
| Sussex-rd., a plot of land, 0 a. 3 r. 14 p., f. | 300 |
| Yarmouth-rd., 13 plots of building land, f. | 436 |
| 35, 37, and 39, Salisbury-rd., f. | 500 |
| 17, 19, and 23, Denmark-st., f. | 800 |

By WILKINSON, SON, & WELCH (at Brighton).

| | |
|---|---|
| Hove, Sussex.—80, Goldstone villas, f., r. 55*l.* | 910 |

By R. W. SCOBELL (at Masons' Hall Tavern).

| | |
|---|---|
| City of London.—Ludgate-hill, "The Ludgate Restaurant," u.t. 8 yrs., r. 400*l.* till Lady-day 1901, and 475*l.* thereafter, with goodwill | 1,060 |

By FLEURET, SON, & ADAMS (at Masons' Hall Tavern).

| | |
|---|---|
| Dulwich.—Oglander-rd., "The Oglander Tavern," u.t. 37 yrs., r. 140*l.*, with goodwill | 11,400 |

By WHETHERLY & HASLETT (at Masons' Hall Tavern).

| | |
|---|---|
| Lewisham.—High-rd., "The Clarendon" p.-h., u.t. 36 yrs., r. 100*l.*, with goodwill | £3,900 |

By WYER, ADAMS, & GLOVER (at Masons' Hall Tavern).

| | |
|---|---|
| Plumstead, Kent. — Raglan-rd., "The Prince Alfred" p.-h., u.t. 32 yrs., g.r. 15*l.*, r. 60*l.* | 2,560 |

March 15.—By GLASIER & SONS.

| | |
|---|---|
| Ramsgate, Kent.—Hollicondane-rd., &c., f.g.r.'s 129*l.*, reversion in 78 yrs. | 3,300 |

By H. C. BIGDEN.

| | |
|---|---|
| Battersea.—3, 5, and 7, Wye-st., f., r. 78*l.* | 920 |

By E. W. HARRIS.

| | |
|---|---|
| Beckenham.—22, Ravenscroft-rd., u.t. 73 yrs., g.r. 5*l.* 5s. | 150 |

By PHIBBS GIBSON & CO.

| | |
|---|---|
| Dulwich. — 96, Alleyn-rd., u.t. 44 yrs., g.r. 4*l.* 1s. 4d. | 615 |

By BAXTER, PAYNE, & LEPPER.

| | |
|---|---|
| Orpington, Kent.—A freehold building site of 2¼ a., with a partly-finished chateau thereon | 1,320 |
| Bromley, Kent.—Cumberland-rd., &c., a corner building site, f. | 300 |
| St. Mary Cray, Kent.—1, North Bank, f., r. 32*l.* | 500 |

By GEORGE BRINSLEY.

| | |
|---|---|
| Streatham.—Ellora-rd., &c., f.g.r.'s 49*l.* 10s., reversion in 71 yrs. (in lots) | 1,350 |
| Bethnal Green.—21 to 31 (odd), Gardner's-rd., u.t. 58 yrs., g.r. 12*l.* 9s. | 1,460 |
| Walworth.—69 to 79 (odd), Farmer's-rd., u.t. 49 yrs., g.r. 18*l.* | 1,040 |

By FOSTER & CRANFIELD.

| | |
|---|---|
| Neasden.—Neasden-lane, The Model Farm, f. | 3,400 |

By THURGOOD & MARTIN.

| | |
|---|---|
| Wandsworth.—1 to 6, Elizabeth-pl., f. | 1,355 |
| 8 to 13, Prospect Cottages, f. | 1,780 |

By SELFE, BALL, SMITH & CO.

| | |
|---|---|
| Surbiton, Surrey.—Maple-rd., Tudor Villa, f. r. 47*l.* | 665 |

By J. H. HIBBARD.

| | |
|---|---|
| Lee.—113, High-rd., u.t. 53 yrs., g.r. 3*l.*, r. 50*l.* | 470 |
| 50, Blessington-rd., u.t. 53 yrs., g.r. 3*l.*, r. 45*l.* | 450 |
| Winchmore Hill.—Green-lanes, a block of land, f. | 1,060 |
| Hornsey.—38, Coleraine-rd., u.t. 86 yrs., g.r. 6*l.* | 375 |

By DRAWBRIDGE & ANSELL (at Burgess Hill).

| | |
|---|---|
| Burgess Hill, Sussex.—Freek-lane, &c., a freehold building estate, 24 a. 1 r. 36 p. | 1,300 |

By Messrs. SAUL (at Boston).

| | |
|---|---|
| New York, Lincs.—Enclosures of land, 14 a. 2 r. 5p., f. | 470 |
| Ancaster House and plot of land adjoining, 1 r. 38 p., f. | 193 |
| Castledyke Farm, 21 a. 1 r. 28 p., f. | 750 |

March 16.—By H. J. BLISS & SONS.

| | |
|---|---|
| Old Ford.—Lefevre-rd., f.g.r. 60*l.* 5s., reversions in 67 and 66 yrs. | 1,555 |
| 72 to 82 (even), Milton-rd., u.t. 63 yrs., g.r. 12*l.* | 910 |
| Poplar.—6 to 10, Chrisp-st., u.t. 53 yrs., g.r. 15*l.* | 345 |
| Plaistow.—5 to 15 (odd), New Barn-st., c. | 505 |

By JENKINS & SONS.

| | |
|---|---|
| Honor Oak.—3, Mundania-rd., u.t. 83½ yrs., g.r. 8*l.*, r. 50*l.* | 530 |
| Lewisham.—29, Breakspear-rd., u.t. 74½ yrs., g.r. 12*l.*, r. 65*l.* | 750 |

By EVES & SONS.

| | |
|---|---|
| Islington.—58, Canonbury-rd., u.t. 19½ yrs., g.r. 5*l.* 10s., r. 40*l.* | 165 |
| Chingford.—Chingford-rd., a plot of building land, f. | £170 |

By NEWBON, EDWARDS, & SHEPHARD.

| | |
|---|---|
| City-rd.—No. 337, f., r. 63*l.* | 1,020 |
| Barnsbury.—41 and 42, Cumberland-st., a freehold rental of 40*l.*, reversion in 62¾ yrs. | 810 |
| 27, Albion-gr., u.t. 46 yrs., g.r. 4*l.*, r. 42*l.* | 455 |
| 132, Hemingford-rd., u.t. 44 yrs., g.r. 8*l.*, e.r. 55*l.* | 610 |
| Holloway.—9, 11, and 13, Orpingley-rd., u.t. 78 yrs., g.r. 10*l.* | 550 |
| 8, Medina-rd., u.t. 62 yrs., g.r. 4*l.* 10s., r. 32*l.* | 370 |
| Walworth.—164, Lorrimore-rd., u.t. 50 yrs., g.r. 3*l.* 10s., r. 30*l.* | 325 |

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

## PRICES CURRENT OF MATERIALS.

### TIMBER.

| | | | | | | |
|---|---|---|---|---|---|---|
| Greenheart, B.G. | ton | £8 | 0 | 0 | 0 | 0 0 |
| Teak, E.I. | load | 10 | 10 | 0 | 15 | 10 0 |
| Sequoia, U.S., ft. cu. | | 1 | 9 | 0 | 2 | 0 0 |
| Ash, Canada, load | | 3 | 17 | 6 | 5 | 5 0 |
| Birch, do | | 3 | 0 | 0 | 5 | 0 0 |
| Elm, do | | 4 | 12 | 6 | 5 | 15 0 |
| Fir, Dantsic, &c. | | 1 | 10 | 0 | 3 | 10 0 |
| Oak, do | | 3 | 5 | 0 | 3 | 15 0 |
| Canada | | 4 | 0 | 0 | 6 | 0 0 |
| Pine, Canada red | | 0 | 0 | 0 | 0 | 0 0 |
| Do, yellow | | 4 | 7 | 6 | 6 | 5 0 |
| Lath, Dantsic, fath. | | 4 | 10 | 0 | 5 | 10 0 |
| St. Petersburg | | 4 | 0 | 0 | 6 | 10 0 |
| Wainscot, Riga, &c., log | | 3 | 15 | 0 | 6 | 5 0 |
| Odessa, crown | | 3 | 15 | 0 | 6 | 5 0 |
| Deals, Finland, 2nd and 1st std. 100 | | 9 | 15 | 0 | 10 | 5 0 |
| Do., 4th and 3rd | | 9 | 15 | 0 | 10 | 5 0 |
| Do., Riga | | 8 | 5 | 0 | 9 | 5 0 |
| St. Petersburg, 1st yellow | | 11 | 15 | 0 | 14 | 5 0 |
| Do., 2nd yellow | | 10 | 15 | 0 | 12 | 5 0 |
| Do., white | | 9 | 15 | 0 | 11 | 15 0 |
| Swedish | | 9 | 15 | 0 | 16 | 15 0 |
| White Sea | | 10 | 15 | 0 | 18 | 0 0 |
| Canada Pine, 1st | | 18 | 15 | 0 | 25 | 5 0 |
| Do., do., 2nd | | 13 | 15 | 0 | 17 | 0 0 |
| Do., do., 3rd, &c. | | 6 | 15 | 0 | 10 | 0 0 |
| Do. Spruce, 1st | | 8 | 5 | 0 | 10 | 5 0 |
| Do., do., 3rd and 2nd | | 7 | 0 | 0 | 8 | 5 0 |
| New Brunswick | | 7 | 0 | 0 | 7 | 15 0 |
| Battens, all kinds | | 5 | 0 | 0 | 16 | 0 0 |
| Flooring boards, sq., 1 in., prep., 1st | | 9 | 0 | 0 | 15 | 3 0 |
| Do., 2nd | | 0 | 7 | 0 | 0 | 12 3 |
| Other qualities | | 0 | 5 | 3 | 0 | 6 6 |
| Cedar, Cuba, ft. | | 0 | 0 | 4 | 0 | 0 4½ |
| Honduras, &c. | | 0 | 0 | 4 | 0 | 0 4½ |
| Mahogany, Cuba | | 0 | 0 | 5½ | 0 | 0 7½ |
| St. Domingo, cargo av. | | 0 | 0 | 5 | 0 | 1 3 |
| Mexican do., do. | | 0 | 0 | 3½ | 0 | 0 4 |
| Tabasco, do., do | | 0 | 0 | 4 | 0 | 0 6½ |
| Honduras, do. | | 0 | 0 | 4½ | 0 | 0 6 |
| Box, Turkey, ton | | 6 | 0 | 0 | 15 | 0 0 |
| Satin, Porto Rico | | 0 | 0 | 9 | 0 | 2 0 |
| Walnut, Italian | | 0 | 0 | 3 | 0 | 0 7½ |

### METALS.

| | | | | | | |
|---|---|---|---|---|---|---|
| IRON—Pig, in Scotland | ton | 2 | 14 | 7½ | 0 | 0 0 |
| Bar, Welsh, in London | | 6 | 0 | 0 | 6 | 5 0 |
| Do. do. at works in Wales | | 5 | 15 | 0 | 5 | 17 6 |
| Do. Staffordshire, in London | | 6 | 5 | 0 | 7 | 10 0 |
| COPPER—British cake and ingot | | 72 | 5 | 0 | 72 | 15 0 |
| Best selected | | 73 | 0 | 0 | 73 | 15 0 |
| Sheets, strong | | 77 | 0 | 0 | 80 | 0 0 |
| Chili bars | | 67 | 5 | 0 | 0 | 0 0 |
| YELLOW METAL | lb. | | 6½d. | | | 7d. |
| LEAD—Pig | | | | | | |
| Spanish | ton | 14 | 16 | 3 | 0 | 0 0 |
| English Com. Brands | | 15 | 0 | 0 | 0 | 0 0 |
| Sheet, English, 6 lbs. per sq. ft. and upwards | | 16 | 1 | 3 | 0 | 0 0 |
| Pipe | | 16 | 11 | 3 | 0 | 0 0 |
| ZINC—English sheet | ton | 30 | 0 | 0 | 0 | 0 0 |
| Vieille Montagne | | 31 | 0 | 0 | 0 | 0 0 |
| Spelter | | 27 | 5 | 0 | 27 | 10 0 |
| TIN—Straits | | 107 | 7 | 6 | 0 | 0 0 |
| Australian | | 107 | 10 | 0 | 108 | 0 0 |
| English Ingots | | 110 | 10 | 0 | 111 | 10 0 |
| Banca | | 0 | 0 | 0 | 0 | 0 0 |
| Billiton | | 0 | 0 | 0 | 0 | 0 0 |

### OILS.

| | | | | | | |
|---|---|---|---|---|---|---|
| Linseed | ton | 18 | 0 | 0 | 0 | 0 0 |
| Cocoanut, Cochin | | 27 | 15 | 0 | 0 | 0 0 |
| Do. Ceylon | | 24 | 10 | 0 | 0 | 0 0 |
| Palm, Lagos | | 21 | 15 | 0 | 0 | 0 0 |
| Rapeseed, English, pale | | 22 | 15 | 0 | 0 | 0 0 |
| Do. Brown | | 21 | 5 | 0 | 0 | 0 0 |
| Cottonseed ref. | | 15 | 0 | 0 | 16 | 0 0 |
| Oleine | | 17 | 0 | 0 | 18 | 0 0 |
| Lubricating U.S. | | 0 | 5 | 3 | 0 | 7 6 |
| Do. Black | | 0 | 5 | 0 | 0 | 6 6 |
| TAR—Stockholm | barrel | 1 | 5 | 0 | 0 | 0 0 |
| Archangel | | 0 | 18 | 0 | 0 | 0 0 |
| Turpentine | | 34 | 0 | 0 | 0 | 0 0 |

## TO CORRESPONDENTS.

R. M.—J. B. (amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at public meetings, rests, of course, with the authors.

*We cannot undertake to return rejected communications.*

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

# COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

## COMPETITIONS.

| Nature of Work. | By whom Advertised. | Premiums. | Designs to be delivered. |
|---|---|---|---|
| School Buildings | Fleetwood U.D.C. | 0l. 10s. | April 18 |
| Market Hall | Stockton-on-Tees Corp | 25l.; 15l.; 10l. | May 1 |
| Kursaal | Harrogate Corp. | 150l.; 100l.; and 75l. | June 3 |
| Boys School | St. Thomas Sch. Bd. Exeter | ..... | No date |

## CONTRACTS.

| Nature of Work or Materials. | By whom Required. | Forms of Tender, &c. Supplied by | Tenders to be delivered. |
|---|---|---|---|
| *Dust Destructor | Beckenham U.D.C. | J. A. Angell, Council Offices, Beckenham | Mar. 27 |
| *Extension of Laundry at Infirmary | City of London Union | Pridmore, 2, Broad-street-buildings, E.C. | do. |
| *Drainage | Willesden D.C. | O. C. Robson, Public Offices, Dyne-road, Kilburn | Mar. 28 |
| *Repairs, and Covering with Zinc and Copper Dome at Offices | Poplar B. of W. | Surv. 17, High-street, Poplar, E. | do. |
| Stone and Slag | Pocklington R.D.C. | T. Robson, Pocklington | do. |
| Electrical Plant, &c. | Doncaster Corp. | J. N. Schoolbred, C.E. 47, Victoria-st. E.C. | do. |
| Granite (3,500 tons) | Uppingham R.D.C. | J. E. Williford, Council Offices, Uppingham | do. |
| Road Materials | Sowerby Bridge U.D.C. | Rhodes & Evans, Commercial Bank-chmbrs. Halifax | do. |
| Water Supply Works, St. Stephens-by-Saltash | St. German's R.D.C. | F. W. Cleverton, 4, Buckland-terrace, Plymouth | do. |
| Alterations to Parish Church, Glencolumbkille, co. Donegal | Select Vestry | S. P. Close, Archt. Donegal | dc. |
| Sewerage Works, &c. | Stanley (Durham) U.D.C. | J. Routledge, Surv. Council Offices, Stanley | do. |
| *Road Material | Lewisham B. of W. | Surveyor, Town Hall, Catford, S.E. | do. |
| *English Portland Cement | St. Saviour's B. of W. | G. R. Norrish, Offices, Emerson-st. Bankside, S.E. | Mar. 29 |
| *Removal of Dust | Chiswick U.D.C. | A. Ramsden, Vestry Hall, Chiswick | do. |
| Slag, &c. | Clown R.D.C. | H. J. Gower, Surv. Post Office, Whitwell, Chesterfield | do. |
| Stone (1,000 tons) | East Kerrier R.D.C. | G. A. Jenkins, Penryn | do. |
| Road Works, Cliffe | Strood (Kent) R.D.C. | G. W. Prall, Workhouse, Strood | do. |
| Paving Works | Saffron Walden T.C. | A. H. Forbes, C.E. Saffron Walden | do. |
| Sewers, &c. Erdington | Birmingham Corp. | H. H. Humphries, Surv. Public Hall, Erdington | do. |
| Street Works, Tranmere | Birkenhead Corp. | C. Brownridge, C.E. Town Hall Birkenhead | do. |
| Electrical Plant, &c. | Aberdeen Corp. | J. A. Bell, City Engr. Town House, Aberdeen | do. |
| Surveyor's Materials | Gateshead Corp. | J. Bower, C.E. Town Hall, Gateshead | Mar. 30 |
| Surveyor's Materials | Clayton-le-Moors U.D.C. | A. Dodgeon, Surv. Clayton-le-Moors | do. |
| Surveyor's Materials | Withington (Lancs.) U.D.C. | A. H. Mountain, Surv. Town Hall, Withington | do. |
| Stone, &c. | Barton Regis R.D.C. | J. A. Henderson, Surv. Winterbourne | Mar. 31 |
| Granite Road Metal and Drain Pipes, Congleton | Town Council | R. Burslan, Boro Surv. Market-place, Congleton | do. |
| Granite (16,000 tons) | Bucks C.C. | R. J. Thomas, County Hall, Aylesbury | do. |
| Additions to School | Managers of Englefield Green Schools | W. Menzies, Archt. Englefield Green, Surrey | April 1 |
| *Road Materials | Bromley U.D.C. | Council Offices | April 4 |
| * Construction and Sinking of Well | Rochford R.D.C. | J. Mansergh, 5, Victoria-street, S.W. | do. |
| Reservoir | Ledbury U.D.C. | R. E. W. Berrington, Engr. Wolverhampton | do. |
| Road Works, Oban | Argyll C.C. | K. Macrae, Dist. Surv. 5, Argyll-st. Oban | do. |
| Surveyor's Materials | Newburn-on-Tyne R.D.C. | T. Gregory, Surv. Newburn-on-Tyne | do. |
| Sewers, Purfleet | King's Lynn Corp. | E. J. Silcock, C.E. King-st. King's Lynn | do. |
| Public Baths | Leyton (Essex) U.D.C. | Harrap & Duffield, C.E. 34, Queen-st. E.C. | do. |
| Tar Paving Works, &c. | West Bridgford U.D.C. | W. Pare, C.E. George-rd. West Bridgford | do. |
| Services and Materials (various) | Southgate U.D.C. | E. G. Lawson, Council Offices, Palmer's Green, N. | do. |
| *Wrought Iron Fencing | Watford U.D.C. | D. Waterhouse, 14, High-st. Watford, Herts. | April 5 |
| Asphalt Paving Works | Westminster Vestry | G. R. W. Wheeler, Town Hall, Caxton-st. Westminster | do. |

## CONTRACTS—*Continued.*

| Nature of Work or Materials. | By whom Required. | Forms of Tender, &c. Supplied by | Tenders to be delivered |
|---|---|---|---|
| *Stoneware Drain Pipes, Traps, &c. | Hove Corp. | H. H. Scott, Town Hall, Hove | April |
| *Street Watering Vans and Tumbler Carts | Twickenham U.D.C. | F. W. Pearce, Town Hall, Twickenham | do. |
| Gas Works (Contracts 1, 2) | Bury (Lancs.) Corp. | H. Simmonds, Engr. | do. |
| *Glazed Stoneware Socket Pipes | Birmingham, Tame & Rea Dis. Drainage Board | Elton, Bury | do. |
| *Agricultural Drain Pipes | do. | J. Knight, Council House, Birmingham | do. |
| *Drain Pipes | Bethnal Green Vestry | do. | do. |
| Road Materials | Monks Kirby R.D.C. | F. W. Barratt, Vestry Hall, Church-row, Bethnal Green, E. | Apr. |
| Schools, Ocker Hill | Tipton Sch. Bd. | J. C. Coates, Surv. Bitteswell, Lutterworth | do. |
| *Underground Conveniences | St. Pancras Vestry | A. Long, Archt. 21, High-st. West Bromwich | do. |
| *Wood Paving, &c. | Camberwell Vestry | W. N. Blair, Vestry Hall, Pancras-rd. N.W. | April |
| *Paving (Granite Setts) | Islington Vestry | Surveyor, Vestry Hall | do. |
| *Four Pairs Wrought Iron Gates | Hull Corp. | J. P. Barber, Vestry Hall, Upper-st. N. | April |
| *Providing and Laying Cast-iron Pipes, &c. | Leigh-on-Sea U.D.C. | City Engineer | do. |
| *Sinking a Well | Greenwich Union | J. Mansergh, 5, Victoria-st. S.W. | April |
| *Buoy Store, &c. at Trinity Store, Penzance | Trinity House Corp. | T. Dinwiddy, 12, Croom's Hill, Greenwich, S.E. | do. |
| Road Materials | Gloucester Corp. | Trinity House, London, E.C. | April |
| Sewerage Works | Bexhill U.D.C. | —Weaver, Surv. Denmark-rd. Gloucester | April |
| *Alterations and Repairs at Pumping Station | L.C.C. | G. Ball, C.E. Town Hall, Bexhill | April |
| *Engines, Pumps, &c. for Water Works | Gravesend & Milton Water Works Co. | Engr.'s Dept. County Hall, Spring Gardens, S.W. | April 25 |
| *Church, Elland, Yorks. | ..... | J. Mansergh, 5, Victoria-st. S.W. | April 27 |
| Street Works | Stapleford Co-op. Soc. Ltd. | G. H. Fellows-Prynne, 6, Queen Anne's Gate, S.W. | No date |
| Additions to Business Premises, Broadmead, Bristol | Pragnell & Co. | E. R. Ridgway, Surv. Long Eaton | do. |
| Two Shops and Three Houses, Belfast | J. Campbell | J. Hart, Liverpool-chmbrs. Corn-st. Bristol | do. |
| Five Houses, Somerset-rd. Pudsey | ..... | W. J. Moore, Archt. Whitehall-buildings, Belfast | do. |
| House, Beach-road, Southend | G. Ford | G. D. Goforth, Richardshaw-lane, Pudsey | do. |
| Combing Shed, Shipley | ..... | W. Y. Hobbiss, Archt. 57, High-st. Southend | dc. |
| Additions to Schools | South Uist (N.B.) Sch. Bd. | J. Jackson, Archt. Barry-st. Bradford | do. |
| Store Premises, Littlemoss | Waterloo (Lancs.) Indus. Prov. Co-op. Soc. Ltd. | J. Weddespoon, C.E. Inverness | do. |
| Schools, Gates-st. Wolverhampton | Managers | A. J. Howcroft, Archt. 12, Clegg-st. Oldham | do. |
| Store Premises, Bridge-st. Wrexham | ..... | F. H. Lynes, Archt. Lichfield-st. Wolverhampton | do. |
| Slaughter House, &c. Bow-st. Rugeley | Indus. Co-op. Soc. Ltd. | Morison & Son, Archt. King-st. Wrexham | do |
| Eight Cottages, King's-road | Halstead (Essex) Co-op. Soc. Ltd. | W. Price, Albion-street, Rugeley | do. |
| Shop, Keeling's-lane, Northwood, Hanley | E. Woodward | Goodey & Cressall, Archt. 2, Victoria-chambers, Colchester | do. |
| Shop Front and Alterations, Westgate-st. Ipswich | ..... | A. P. Miller, Archt. Frederick-st. Hanley | do. |
| Fifty Cottages | Port Talbot Development Co. Ltd. | T. W. Catman, Archt. Northgate-st. Ipswich | do. |
| *School Buildings, St. Peter Port | States of Guernsey | D. C. Salmond, Archt. 7, Windsor-place, Cardiff | do. |
| | | Colson, Farrow & Nisbett, 45, Jewry-st. Winchester | do. |

## PUBLIC APPOINTMENTS.

| Nature of Appointment. | By whom Advertised. | Salary. | Application to be in. |
|---|---|---|---|
| *Road Foreman | Clerkenwell Vestry | 2l. 10s. per week | Mar. 27 |
| *Architectural Draughtsman | L.C.C. | 3l. 3s. per week | Mar. 28 |
| *Borough Surveyor and Inspector of Nuisances | Hythe Corp. | 200l. rising to 250l. | Mar. 31 |
| *Surveyor and Inspector of Nuisances | Kendal Corp. | 175l. per annum | April 5 |
| *General Engineering Assistant | Birkenhead Corp. | 110l. rising to 150l. | April 7 |
| *Surveyor's Chief Clerk | Twickenham U.D.C. | 80l. rising to 120l. per an. | April 8 |
| *Surveyor | Hackney Vestry | 600l. per an. to commence | April 18 |

*Those marked with an asterisk (*) are advertised in this Number.* ***Competitions,*** *p.* iv. ***Contracts,*** *pp.* iv. vi. viii. x. & xxiii. ***Public Appointments,*** *pp.* xx. xxi. & xxiii.

## TENDERS.

*** Next week communications for insertion under this heading must reach us *not later than 10 a.m.* on Wednesday, as, owing to the Easter holidays, we go to press a day earlier than usual.

* Denotes *accepted.* † Denotes *provisionally accepted.*

ALVASTON (near Derby).—For the erection of a villa residence and outbuildings, for Mr. Frank Hatton. Mr. Geo. Yates Mills, architect, Irongate, Derby. Quantities by the architect :—

| | | | |
|---|---|---|---|
| Chas. Brown | £1,726 0 6½ | H. Chattle | £1,570 0 0 |
| W. Walkerdine | 1,618 10 0 | A. Smith | 1,503 0 0 |
| Arthur Brown | 1,578 16 0 | G. Durant* | 1,491 0 0 |

[All of Derby.]

BOURNEMOUTH.—For painting the Promenade Pier. Mr. F. W. Lacey, M.Inst.C.E., Borough Engineer and Surveyor :—

| | Genuine White Lead Paint. | Calley's Torbay Oxide Paint. | Ferrodor Paint. |
|---|---|---|---|
| Shears & Sons | £350 0 | £365 0 | £365 0 |
| Jenkins & Sons | 329 0 | 346 0 | 363 0 |
| Wm. A. Clapcott | 255 10 | 270 10 | 270 0* |

[All of Bournemouth.]

BRENTFORD.—For redecorations, &c., to "The Griffin" public-house, for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, surveyor, Chiswick :—

| | | | |
|---|---|---|---|
| Dorey & Son | £133 | Robinson | £128 |
| Adamson & Son | 129 | Speechley & Smith | 117 |

BURTON-ON-TRENT.—For the erection of business premises, High-street, Burton-on-Trent, for Mr. James Campbell. Mr. Geo. Yates Mills, architect, Irongate, Derby. Quantities by the architect :—

| | | | |
|---|---|---|---|
| J. Hunter | £1,688 | G. Hodges | £1,580 |
| W. A. Stevenson | 1,660 | G. Kennard | 1,535 |
| H. Edwards | 1,620 | A. Kershaw | 1,498 |
| Lowe & Sons | 1,620 | J. T. Varlow* | 1,469 |

[All of Burton-on-Trent.]

CARLTON.—For new stores at Carlton, Notts, for The Netherfield and Carlton Co-operative Society, Ltd. Mr. R. Whitbread, architect, Carlton, near Nottingham :—

| | | | |
|---|---|---|---|
| Hodson & Son | £1,140 0 0 | J. Lewin | £1,054 0 0 |
| A. G. Bell | 1,118 5 0 | A. B. Clarke | 1,050 0 0 |
| J. Hutchinson | 1,100 0 0 | T. H. Harper* | 931 16 10 |
| T. Cuthbert | 1,068 0 0 | | |

CHISWICK.—For building two houses and stables for Mr. L. Cox. Mr. J. Hume, architect and surveyor, Chiswick :—

| | | | |
|---|---|---|---|
| Eydman & Sons | £1,448 | Speechley & Smith | £1,220 |
| Adamson & Son | 1,330 | L. L. Leeder | 1,175 |
| Blackman | 1,229 | Bendon | 1,160 |

COOKHAM DEAN.—For the erection of the New Infants' School, for the Vicar, Churchwardens, and Committee. Mr. Gordon P. G. Hills, architect, 4, Adam-street, Adelphi, W.C. Quantities supplied by Mr. C. A. Bassett-Smith, 10, John-street, Adelphi, W.C. :—

| | | | |
|---|---|---|---|
| R. G. Lacey | £1,270 | W. Creed | £1,150 |
| Cooper & Sons | 1,267 | H. H. Taft (reduced tender accepted) | 1,135 |
| Silver & Sons, Ltd. | 1,189 | | |

DOVER.—For the supply of flints, for the Town Council :—

*1,000 cubic yds. of Pit Flints at 4s. 10d. per yd.*

M. E. Stiff* (Mrs.), Dover.

*150 cubic yds. of Field Flints at 6s. 6d. per yd.*

E. Broadley,* Dover.

ELGIN.—For the extension of Moray-street from Rose avenue to Wards-road. Mr. A. A. Turriff, Burgh Surveyor, Elgin :—

| | | | |
|---|---|---|---|
| Milne & Son | £655 0 | Chisholm & Co. | £546 10 |
| Jas. Mackenzie | 580 0 | Fraser, Inverness* | 532 10 |

ENNISKILLEN (Ireland).—For the erection of business premises, High-street, for Mr. W. Boyd. Mr. T. Elliott, architect, 37, Darling-street, Enniskillen :—

| | | | |
|---|---|---|---|
| J. Reid | £1,460 | J. Harvey, Enniskillen* | £1,400 |
| J. Donnelly | 1,403 | | |

FARNHAM ROYAL (Bucks).—For the erection of dwelling house and stabling at Farnham Royal for Mr. Herbert, Windsor. Mr. S. M. Wyborn, architect, Park Chambers, Windsor :—

| | | | |
|---|---|---|---|
| J. Devrill | £1,980 | H. D. Bowyer | £1,813 |
| W. Watson | 1,895 | C. W. Cox & Sons, Maidenhead* | 1,790 |
| H. Charman | 1,832 | | |

HALSTEAD.—For additions to industrial schools. Messrs. Baker & May, architects, Colchester :—

| | | | |
|---|---|---|---|
| T. J. Ward | £775 0 0 | Sudbury, Sen. | £541 5 0 |
| Runnacles & Co. | 566 0 0 | G. Sharp* | 535 7 6 |
| Sudbury & Sons | 550 4 0 | | |

HINCKLEY (Leicestershire). — For alterations and additions to the "Holly Bush" Inn, for Messrs. Marston, Thompson, & Son, Limited Mr. Geo. Yates Mills, architect, Irongate, Derby. Quantities by the architect :—

| | | | |
|---|---|---|---|
| Hall & Son | £696 4 | Thomas West, Burton-on-Trent* | £576 15 |
| Greaves & Farmer | 655 0 | | |

ILFORD.—For erecting and completing shop premises. Cranbrook-road, Ilford, Essex, for Mr. W. F. Prentis, Messrs. Verlyck & Dunn, architects :—
H. L. Pridmore, Ilford* ..... £2,195

ILFORD. — For the "Seven Kings" Hotel, Ilford, for Messrs. Savill Brothers, Limited. Messrs. W. G. Bartleet & Son, architects, 56, New Broad-street. Quantities by Messrs. W. E. Stoner & Sons, 8, Blomfield-street, E.C. :—
Hammond & Sons* ..... £7,675

LONDON.—For additions and alterations to workhouse, Constance-road, Camberwell, for the Guardians of St. Giles, Camberwell. Messrs. Henry Jarvis & Son, architects :—

| | | | |
|---|---|---|---|
| G. J. Newton | £7,313 | Chessum & Sons | £6,884 |
| Kirk & Randall | 7,145 | Gough & Co., Hendon* | 6,394 |
| G. Parker | 6,949 | | |
| Staines & Son | 6,888 | | |

LONDON.—For alteration and additions to No. 54, Russell-square, Bloomsbury, for Mr. C. J. Woolff. Mr. Philip E. Pilditch, architect :—

| | | | |
|---|---|---|---|
| Parkinson | £1,925 | Kirk & Kirk* | £1,540 |
| Brown | 1,590 | | |

LONDON.—For the erection of fifty-four cottages at Erith, S.E., for the South-Eastern Railway Company. Messrs. H. S. Saunders and Messrs. G. Humphreys Davies, & Co., joint architects :—

| | | | |
|---|---|---|---|
| Holloway Bros. | £27,180 | W. Sheppard | £23,857 |
| Howell J. Williams | 24,777 | G. E. Wallis & Sons | 23,787 |
| Stebbings & Pannell | 24,570 | T. Knight | 23,707 |
| Perry & Co. | 24,167 | J. Smith & Sons | 23,491 |

LONDON.—For alterations, &c., to 19, High-street, Marylebone. Mr. W. W. Gwyther, architect :—
J. W. Heeps* ..... £2,449

LONDON.—For alterations at the "Lamb Hotel," Caledonia Market, Islington, for Mr. J. Bambridge. Mr. C. Wisher, architect, Wellesley-road, Leytonstone :—

| | | | |
|---|---|---|---|
| Salt | £1,989 | Britten | £1,812 |
| Todd | 1,976 | Rowe | 1,799 |
| Easton | 1,855 | Holmes & Annesley* | 1,672 |

LONDON.—For the erection of electric light generating station in Townmead-road, Fulham, for the Fulham Vestry. Mr. F. Hastings Medhurst, B.Sc., A.M.Inst.C.E., Engineer. Quantities by Mr. Walter Herring :—
F. G. Minter* ..... £22,970

LONDON. — For rebuilding "The Pigeons" Hotel, Romford-road, Stratford, E., for Messrs. Savill Brothers, Limited. Mr. Henry Poston, architect, 39, Lombard-street, E.C. Quantities by Messrs. R. L. Curtis & Sons, 119, London Wall, E.C. :—

| | | | |
|---|---|---|---|
| Mowlem & Co. | £13,500 | Grover & Sons | £12,710 |
| Charles Cox | 12,827 | Hall, Beddall & Co. | 12,673 |
| Killby & Gayford | 12,736 | Todd & Co.* | 12,397 |

LONDON.—Annual and triennial contracts for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor :—

*Portland Cement for One Year ending March 31, 1900.*
The Arlesey Lime and Portland Cement Co., Arlesey* (per ton) ..... £1 15

*For General Stores. One Year ending March 31, 1900.*
Gibb & Co., Fenchurch-street* ..
G. Tyrie, Shoreditch* .....
Middleton, Great George-st., E.* } For portions, as Schedule.

*Iron and Steel. One Year ending March 31, 1900.*
Pfeil & Co., Clerkenwell* ..... Per Schedule.

*For Forage. One Year ending March 31, 1900.*
Brimage & Co., Camden Town* .... As Schedule.

*For Harness and Stable Requisites. One year ending March 31, 1900.*
Gidden, Streatham-street, W.C.* .... As Schedule.

*Wheelwright's Work and Cart Fittings. One Year ending March 31, 1900.*
Callow, Pembroke-street, Islington.* As Schedule.

*Street Watering and General Cartage Work. Three Years ending March 31, 1902.*
W. Walker, Holloway* .. ..... As Schedule.

*Road Materials. One Year ending March 31, 1900.*
T. Adams, Wood Green* ..... As Schedule.

*Paving Granite Kerb Channel Pitching and General Masons' Materials. One Year ending March 31, 1900.*
W. Griffiths, Bishopsgate-street, E.C.* .. As Schedule.

*Broken Stone for Macadamising. One Year ending March 31, 1900.*
L. Sommerfield, Great Tower-street., E.C.* .. For Alderney Granite as Schedule.
Narborough & Enderby Granite Quarries Co., Ltd.* For Enderby Granite as Schedule.

*For Masons' and Paviors' Work. One Year ending March 31, 1900.*
W. Griffiths, Bishopsgate-street, E.C.* .. As Schedule.

*In situ Concrete Paving. One Year ending March 31, 1900.*
Stuarts' Granolithic Co., Limehouse* .. 5s. 3d. per yard super.

*For Stand Post Work Maintenance. Three Years ending March 31, 1902.*
J. & F. May, Lincoln's Inn, W.C.* .. As Schedule.

*Disinfectants. One Year ending March 31, 1900.*
Adcock, Easton & Co., Finsbury Park* .....
Essett's Sanitary Fluid Co., Battersea* .....
Sanitas Co., Bethnal Green* .... } For parts, as per Schedule.

HEREFORD.—For the erection of new buildings in connexion with the proposed electricity station in Widemarsh-street. Mr. John Parker, City Engineer :—

| — | Buildings. | Chimney. | Ironwork. | Lightning Conductor. | Total. |
|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ |
| C. Cooke | 2,300 | 510 | 596 | 94 | 3,500 |
| Lewis & Co., Hereford | 2,241† | 461† | 453 | 50† | 3,205 |
| Alexander & Duncan, Leominster | — | — | 394* | — | — |
| Lewis Hodges | 2,498 | 522 | 552 | 48 | 3,620 |
| Bowers & Co. | 2,480 | 477 | 426 | 55 | 3,438 |
| Hill & Smith | — | — | 445 | — | — |
| J. Cheese | 3,373 | 570 | — | — | — |
| H. Price | 2,586 | 503 | 481 | 44 | 3,614 |
| J. W. Smith | 2,689 | 532 | 474 | 50 | 3,745 |
| Steavenson & Co. | — | — | 410 | — | — |
| Keay, Ltd. | — | — | 507 | — | — |
| King & Son | 3,030 | 632 | 670 | 48 | 4,380 |

LONDON.—For alterations to Nos. 67, 69, and 71, Southampton-row, W.C., for Messrs. Walter Hill & Co. Mr. W. H. Pertwee, architect, Clifford's Inn, E.C. Quantities by Mr. Joseph Rookwood, 47, Museum-street, Bloomsbury, W.C. :—

| | | | |
|---|---|---|---|
| Killby & Gayford | £2,821 | Snewin Bros. | £2,583 |
| Steven Bros. | 2,656 | F. T. Chinchen | 2,496 |
| Harris & Wardrop | 2,597 | | |

LONDON.—For alterations at Nos. 76 and 78, Queen's-road, Bayswater, for Messrs. John Welford & Sons :—
F. T. Chinchen* ..... £284

MAIDENHEAD.—For the erection of a dwelling house on the Highway Estate, for Mr. Pendrill :—
Cox & Sons, Maidenhead* (no competition) .. £485

MAIDENHEAD.—For drainage works and alterations to The Cottage, North Town, Maidenhead, for Mr. W. T. Western. Mr. E. J. Shrewsbury, architect, Queen-street Chambers, Maidenhead :—
Chas. W. Cox & Sons, Maidenhead* ..... £224

MANCHESTER.—For pulling down old brew-house and erecting new malt stoves, &c., for the directors of the Openshaw Brewery at their premises in Brook-street, Openshaw, Manchester. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester :—
E. & C. Jackson, Openshaw ..... £789 18 3

MANCHESTER. — For alterations and additions to Arley House, Withington, for Mrs. F. Mellor. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester :—
J. Lunn, Wilmslow-road, Withington ..... £300

MARLBOROUGH (Wilts).—For the construction of sewers, &c., for the Town Council. Messrs. Fairbank & Son, engineers, 13, Lendal, York :—

| | | | |
|---|---|---|---|
| J. & T. Binns | £5,064 0 0 | W. S. Meredith | £4,100 0 0 |
| W. Gibson | 4,770 0 0 | A. T. Catley | 3,870 0 0 |
| T. Bell | 4,399 19 9 | F. Talbot, Reading* | 3,833 19 4 |
| Johnson Bros. | 4,321 0 0 | J. Ford | 3,337 3 2 |
| J. C. Trueman | 4,114 0 0 | | |

OCKBROOK (near Derby).—For alterations and additions to the "Royal Oak" Inn, for Messrs. Offiler's Brewery, Ltd., Derby. Mr. Geo. Yates Mills, architect, Irongate, Derby :—

| | | | |
|---|---|---|---|
| Clifford | £660 12 3 | Adams & Brailsford | £570 |
| G. Durant | 574 0 0 | Maddocks* | 549 |

[All of Derby.]

ST. MARY'S, SCILLY.—For additions to "Tregarthen's Hotel," for the Hotel Company, Limited. Mr. O. Caldwell, architect, Penzance :—

| | | | |
|---|---|---|---|
| Thomas James | £2,491 | W. Stephens | £2,340 |
| James & Bottrell | 2,343 | Walters, Penzance† | 2,405 |

TEDDINGTON.—For road-making, &c., for the Teddington Urban District Council. Mr. M. Hainsworth, engineer :—

*Road-making.*

| | | | |
|---|---|---|---|
| Nowell & Co. | £7,697 4 3 | Lawrence & Thacker | £6,562 8 8 |
| Free & Sons | 7,495 12 11 | W. Adamson, Kingston* | 6,278 16 6 |
| S. Kavanagh | 7,478 13 6 | | |
| Thos. Adams | 6,813 17 8 | | |

*Tar-paving.*

| | | | |
|---|---|---|---|
| Nowell & Co. | £1,287 0 0 | Chittenden, Lake, & Co. | £358 2 3 |
| Thos. Adams | 1,217 5 0 | Asphaltic Limestone Concrete Co., Birmingham* | 836 17 1 |
| Lawrence & Thacker | 1,153 4 0 | Wm. Shepherd | 831 4 2 |
| S. Kavanagh | 1,150 6 3 | | |
| Free & Sons | 1,131 15 0 | | |
| Hobman & Co. | 1,042 5 10 | | |
| J. Smart | 926 5 11 | | |
| Mainwright & Co. | 865 2 8 | | |

UXBRIDGE.—For the execution of drainage works (contracts Nos. 4 and 5) for the Rural District Council. Mr. J. Anstie, C.E., 10, Marchwood-crescent, Ealing. Quantities by the engineer :—

*Contract No. 4.*

| | | | |
|---|---|---|---|
| A. Kellett | £2,296 13 4 | C. Ford (Harlesden)* | £1,415 0 0 |
| Kitteringham | 1,791 0 0 | | |

*Contract No. 5.*

| | | | |
|---|---|---|---|
| A. Kellett | £2,937 12 9 | Kitteringham (Waltham)* | £2,070 0 0 |
| C. Ford | 2,377 10 0 | | |

WAKEFIELD.—For the execution of water-supply works, for the Corporation. Mr. C. C. Smith, C.E., Town Hall, Wakefield :—

*Kirkham Filter Beds and Lindale Hill Service Reservoir.*

*Contract No. 1.*—Parker & Sharpe, York* .. £33,491 7 8
*Contract No. 2.*—Stanton Iron Works Co., Ltd., Nottingham* ..... 2,689 11 5
*Contract No. 3.*—Glenfield Co., Ltd., Kilmarnock* ..... 469 19 3

WEMBLEY PARK.—For the erection of a house for the Tower Company, Limited. Mr. Matt. Garbutt architect :—

| | | | |
|---|---|---|---|
| Spiers & Sons | £1,660 | Tennant & Co. | £1,568 |
| E. Wheeler | 1,652 | Do. (revised scheme)* | 1,400 |

## LONDON SCHOOL BOARD TENDERS.

**At the last meeting of the London School Board, the Works Committee submitted the following lists of tenders :—**

* Denotes accepted, or recommended for acceptance.

ARTHUR-STREET. — Enlargement of Blind School :—

| | | | |
|---|---|---|---|
| R. S. Ronald | £665 0 0 | Freeman & Son | £515 15 0 |
| H. & G. Mallett | 611 0 0 | H. Line | 515 15 0 |
| Rice & Son | 599 0 0 | G. Kemp* | 442 0 0 |

HOMERTON ROW (Enlargement).—Providing auxiliary heating in three halls, six class-rooms, cloak-rooms, and lavatories, ground, first, and second floors, in connexion with existing low-pressure hot-water apparatus :—

| | | | |
|---|---|---|---|
| G. Davis | £398 0 | J. C. & J. S. Ellis | £247 10 |
| Harlow & Son | 330 0 | Cannon & Sons | 240 0 |
| Price, Lea & Co. | 310 0 | Kallaway & Co. | 209 0 |
| J. & F. May | 269 0 | Wontner-Smith, Gray, & Co.* | 207 0 |
| Bates & Pearce | 259 4 | | |

ST. DUNSTAN'S-ROAD (revised).—Special school for sixty children and Manual Training Centre on arches :—

| | | | |
|---|---|---|---|
| J. G. Cowell | £6,188 | Johnson & Co., Ltd. | £4,952 |
| O. Craske | 5,161 | Lathey Bros. | 4,690 |
| Leslie & Co., Ltd. | 5,119 | McCormick & Sons | 4,554 |
| J. Carmichael | 5,054 | E. Triggs* | 4,495 |
| C. Wall | 5,028 | | |

UPTON HOUSE.—New drainage, alterations to offices inside the building, refitting offices outside, replacing slate sinks with glazed fireclay, and alterations to washing lavatories, &c. :—

| | | | |
|---|---|---|---|
| Johnson & Co. | £3,228 | Martin, Wells, & Co. | £2,999 |
| F. & F. J. Wood | 3,118 | Killingback & Co. | 2,877 |
| Lawrance & Sons | 3,097 | F. Britton* | 2,813 |
| Lathey Bros. | 3,042 | | |

*Repairs to Buildings on Schedule.*

WEST LAMBETH.—Group 1. SOUTHWARK.—Group 4 :—

| | West Lambeth, Group 1. Per cent. | | Southwark, Group 4. Per cent. on Schedule Prices. |
|---|---|---|---|
| G. Brittain | + 8½ | .... | + 8½ |
| W. V. Goad | + 22½ | .... | +22½ |
| Lathey Bros. | + 7½ | .... | +10 |
| J. Marsland | + 9 | .... | + 9 |
| Maxwell Bros., Lim. | + 8½ | .... | + 8½ * |
| B. E. Nightingale | + 22½ | .... | +22½ |
| Rice & Son | + 7 * | .... | +12 |

*Interior Cleaning. The work at the following schools will be executed between March 18 and April 8, 1899.*

BELVEDERE-PLACE :—

| | | | |
|---|---|---|---|
| Lathey Bros. | £272 15 0 | E. Proctor | £193 0 0 |
| Edwards & Medway | 246 15 4 | E. Triggs | 170 0 0 |
| H. J. Williams | 223 0 0 | Nightingale | 162 0 0 |
| J. F. Ford | 207 0 0 | Holliday & Greenwood* | 154 0 0 |
| F. R. Blaxton | 201 19 0 | | |

RICARDO-STREET :—

| | | | |
|---|---|---|---|
| C. S. Jones | £283 0 | S. H. Corfield | £157 0 |
| A. W. Derby | 266 10 | J. Kybett | 156 0 |
| T. Willson | 206 0 | J. F. Holliday* | 145 0 |

SHAP-STREET :—

| | | | |
|---|---|---|---|
| Chessum & Sons | £277 | Marchant & Hirst | £169 |
| Snewin Bros. & Co. | 274 | J. Kybett | 168 |
| W. Shurmur | 262 | G. Barker | 162 |
| Silk & Son | 246 | J. Haydon | 158 |
| Collis Willmott | 215 | S. H. Corfield* | 128 |

ADDINGTON-STREET SCHOOL (York-road).—For additional heating :—

| | | | |
|---|---|---|---|
| Comyn, Ching, & Co. | £58 0 0 | W. Simmons | £49 19 0 |
| Vaughan & Brown, Ltd. | 57 0 0 | Knight & Sons | 44 10 0 |
| Cannon & Sons | 55 0 0 | Stevens & Sons | 40 0 0 |
| | | J. Grundy | 38 9 0 |
| | | Duffield & Co.* | 37 0 0 |

BLOMFIELD-ROAD SCHOOL (Plumstead). — For adaptation of house for schoolkeeper :—

| | | | |
|---|---|---|---|
| Thomas & Edge | £425 0 | E. Proctor | £350 0 |
| J. H. Hodgin | 415 0 | Jones & Groves* | 269 10 |
| C. Foreman | 387 0 | | |

BROMLEY HALL-ROAD SCHOOL (Bromley).—For enlarging boiler-room :—

| | | | |
|---|---|---|---|
| G. Barker | £220 0 0 | J. F. Holliday | £167 18 6 |
| A. W. Derby | 197 0 0 | J. T. Robey* | 160 0 0 |

GRAVEL-LANE SCHOOL (Houndsditch). — For double windows for rooms in front of school :—

| | | | |
|---|---|---|---|
| H. Line | £535 0 | Munday & Sons | £457 0 |
| Johnson & Co. | 520 0 | F. R. Blaxton* | 246 10 |

HATFIELD-STREET SCHOOL (Blackfriars).—For additional heating :—

| | | | |
|---|---|---|---|
| H. G. Price, Lea, & Co. | £285 0 | G. Davis | £220 0 |
| J. C. & J. S. Ellis, Limited | 239 5 | Sharp, O'Brien, & Co. | 205 0 |
| Cannon & Sons | 234 0 | Berry, Campbell, & Co. | 182 10 |
| Wenham & Waters, Limited | 222 0 | Kite & Co. | 175 0 |
| | | G. & E. Bradley* | 169 10 |

[See also next page.

HONEYWELL-ROAD SCHOOL (Wandsworth Common).—For partition in infants' department :—

| | | | |
|---|---|---|---|
| W. Hammond | £175 | Maxwell Bros., Ltd. | £134 |
| Williams & Sons | 165 | E. Triggs | 112 |
| Lathey Bros. | 149 | Garrett & Son* | 108 |
| B. E. Nightingale | 134 | | |

"JOHN RUSKIN" SCHOOL (Beresford-street).—For cutting out lower part of house for new entrance, and adapting upper rooms for schoolkeeper :—

| | | | |
|---|---|---|---|
| Lawrance & Sons | £1,068 | Smith & Sons | £649 |
| J. Marsland | 830 | Jones & Groves* | 570 |
| H. & G. Mallett | 688 | | |

MANSFORD-STREET SCHOOL (Old Bethnal Green-road).—For erecting gallery across girls' hall :—

| | | | |
|---|---|---|---|
| Spencer & Co. | £569 10 | Williams & Son | £379 0 |
| Lawrance & Sons | 397 0 | McCormick & Sons | 298 10 |
| Grover & Son | 38 0 | Marchant & Hirst * | 282 0 |

MEDBURN-STREET.—Removing existing apparatus, and providing and fixing low-pressure hot-water apparatus for all rooms not warmed by open fires; also for halls, corridors, cloak-rooms, and lavatories on ground, first, and second floors :—

| | | | |
|---|---|---|---|
| Stevens & Sons | £600 0 | G. Davis | £460 0 |
| Oldroyd & Co., Lim. | 580 0 | Duffield & Co. | 450 0 |
| J. Grundy | 532 0 | C. Kite & Co.* | 435 0 |
| T. S. Knight & Sons | 468 0 | Russell & Co. | 384 10 |

MONSON-ROAD HIGHER GRADE SCHOOL, HATCHAM.—For special rooms :—

| | | | |
|---|---|---|---|
| Thomas & Edge | £5,280 0 0 | J. & C. Bowyer | £4,343 0 0 |
| Kirk & Randall | 5,118 0 0 | H. & G. Mallett | 4,331 0 0 |
| J. F. Ford | 5,115 0 0 | Akers & Co. | 4,276 0 0 |
| Wall & Co. | 4,849 0 0 | E. Triggs | 4,065 0 0 |
| E. Proctor | 4,626 16 8 | Garrett & Sons* | 3,888 0 0 |

PRINCESS MAY-ROAD SITE, STOKE NEWINGTON (FINSBURY AQ).—For new School for 961 children :—

| | | | |
|---|---|---|---|
| Williams & Son | £24,674 | T. L. Green | £24,175 |
| Chessum & Sons | 24,648 | C. Cox | 23,722 |
| F. & F. J. Wood | 24,384 | Grover & Son | 23,619 |
| J. & M. Patrick | 24,311 | Scrivener & Co. | 23,521 |
| Johnson & Co., Limited | 24,262 | L. H. & R. Roberts | 23,132 |
| W. M. Dabbs | 24,197 | Lawrance & Sons. | 23,064 |
| | | Perry & Co.* | 22,423 |

ROTHERHITHE NEW-ROAD SCHOOL.—For partition in girls' department :—

| | | | |
|---|---|---|---|
| J. C. Chalkley | £97 0 0 | J. Marsland | £68 0 0 |
| W. V. Goad | 85 0 0 | Spencer & Co. | 61 0 0 |
| Bruce, Croom & Co. | 75 17 6 | Maxwell Bros., Limited | 57 0 0 |
| J. F. Ford | 72 0 0 | W. Martin* | 54 0 0 |

ST. JOHN'S-ROAD SCHOOL (Hoxton).—For sanitary and drainage works :—

| | | | |
|---|---|---|---|
| Willmot & Sons | £2,076 0 0 | Marchant & Hirst | £1,927 0 0 |
| Lawrance & Sons | 2,064 0 0 | Ashby & Horner | 1,911 0 0 |
| G. Foxley | 2,045 0 0 | Stevens Bros.* | 1,864 0 0 |
| R. P. Beattie | 2,014 16 2 | | |

SHERBROOKE-ROAD SCHOOL (Fulham).—For partition in boys' department :—

| | | | |
|---|---|---|---|
| Maxwell Bros., Ltd. | £77 0 | E. Triggs | £62 |
| Lathey Bros. | 75 0 | J. Garrett & Son* | 57 |
| W. Hammond | 68 10 | | |

STATION-ROAD SCHOOL, HIGHBURY.—For works to offices :—

| | | | |
|---|---|---|---|
| Ashby Bros. | £1,924 0 | Gough & Co. | £1,401 11 |
| McCormick & Sons | 1,800 0 | Ashby & Horner | 1,336 0 |
| F. Britton | 1,600 0 | Killingback & Co. | 1,242 0 |
| Godson & Sons | 1,584 0 | Martin Wells & Co.* | 1,229 0 |
| Rice & Son | 1,437 0 | | |

TOWER-STREET (Seven Dials).—For forming manual centre :—

| | | | |
|---|---|---|---|
| W. Hornett | £331 | Johnson & Co. | £245 |
| T. Cruwys | 325 | T. Nicholson* | 190 |

TENNYSON-STREET SCHOOL, BATTERSEA.—For scheme of structural alterations and improvements :—

| | | | |
|---|---|---|---|
| J. Marsland | £18,390 | W. Downs | £17,775 |
| C. Cox | 18,243 | Lathey Bros. | 17,685 |
| Kirk & Randall | 18,205 | Johnson & Co., Lim. | 17,533 |
| F. & H. F. Higgs | 18,158 | Lawrance & Sons | 17,492 |
| Parsons & Co. | 18,083 | Edwards & Medway | 16,568 |
| Holloway Bros. | 17,912 | Gregory & Co.* | 15,987 |
| J. Carmichael | 17,818 | | |

UPPER KENNINGTON-LANE SCHOOL.—For electric lighting :—

| | | Extra Price for Variations.† |
|---|---|---|
| Drake & Gorham | £385 10 0 | £1 3 0 |
| The Westminster Engineering Co., Limited | 369 10 0 | 7 7 0 |
| F. Geere Howard | 318 0 0 | 1 3 0 |
| Laing, Wharton, & Down, Ltd. | 292 0 0 | 1 6 0 |
| ‡Woods & Co.* | 267 0 0 | 1 3 0 |

† This is the price, per lamp (including switch and plain pendant) for any additions or deductions made during the progress of the work.

‡ These contractors presume that the hours of the work will be as usual, not at night or at other unusual hours.

VAUXHALL-STREET SCHOOL (Lambeth).—For partition in boys' department :—

| | | | |
|---|---|---|---|
| G. Brittain | £47 10 | W. V. Goad | £33 10 |
| J. Marsland | 45 0 | Rice & Son* | 30 0 |
| B. E. Nightingale | 42 10 | | |

WILLIAM-ST. PUPIL TEACHERS' SCHOOL (Hammersmith).—For improving ventilation of large classroom :—

| | | | |
|---|---|---|---|
| G. H. Sealy | £195 0 | W. R. & A. Hide | £95 15 |
| F. T. Chinchen | 124 10 | W. Brown | 92 0 |
| W. Hammond | 113 5 | C. Gurling* | 85 0 |
| R. S. Buckeridge | 107 0 | | |

WILMOT-STREET SCHOOL (Bethnal Green).—For additional heating :—

| | | | |
|---|---|---|---|
| Price, Lea, & Co., | £98 0 | J. C. & J. S. Ellis, Limited | £72 10 |
| Fraser & Son | 96 0 | Palowkar & Sons | 59 15 |
| J. Esson | 85 0 | G. Davis* | 55 0 |
| J. & F. May | 82 0 | | |


TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to DOUGLAS FOURDRINIER) should be addressed to the publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers), can ensure receiving "The Builder," by *Friday Morning's Post.*



THE BATH STONE FIRMS, Ltd.
BATH
FOR ALL THE PROVED KINDS OF
BATH STONE.
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

HAM HILL STONE.
DOULTING STONE.
The Ham Hill and Doulting Stone Co.
(incorporating The Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.)
Chief Office :—Norton, Stoke-under-Ham, Somerset.
London Agent :—Mr. E. A. Williams, 16, Craven-street, Strand.

**Asphalte.**—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

SPRAGUE & CO., Ltd.,
LITHOGRAPHERS AND PRINTERS.
Estate Plans and Particulars of Sale promptly executed.
4 & 5, East Harding-st., Fetter-lane, E.C. [ADVT.

QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.
METCHIM & SON { 8, PRINCES STREET, GT. GEORGE ST. WESTMINSTER
"QUANTITY SURVEYORS' DIARY AND TABLES," For 1899, price 6d. post 7d. In leather 1/- Post 1/1 [ADVT.

Ernest Mathews & Co.
61, St. Mary Axe, E.C.
SLATES, SLABWORK, Enamelled Slate, Marble, Permanent Green Slates.
WORKS:
Bow, London, E. and Aberllefenny, North Wales.
BRANCH HOUSE:
37, Victoria-street, Bristol.

PILKINGTON & CO
(ESTABLISHED 1838),
MONUMENT CHAMBERS,
KING WILLIAM STREET, LONDON, E.C.
Telephone No., 2751 Avenue
*Registered Trade Mark,*
Polonceau Asphalte.
PATENT ASPHALTE and FELT ROOFING.
ACID-RESISTING ASPHALTE.
WHITE SILICA PAVING.
SEYSSEL ASPHALTE.

W. H. Lascelles & Co.,
121, BUNHILL ROW, LONDON, E.C.
Telephone No. 270.
HIGH-CLASS JOINERY,
LASCELLES' CONCRETE
Architects' Designs are carried out with the greatest care.
CONSERVATORIES,
GREENHOUSES,
WOODEN BUILDINGS,
Bank, Office, & Shop Fittings.
CHURCH BENCHES & PULPITS.
ESTIMATES GIVEN ON APPLICATION.

C. B. N. SNEWIN
MAHOGANY, WAINSCOT, WALNUT, TEAK, VENEER, and TIMBER MERCHANT
Nos. 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 17, BACK HILL, HATTON GARDEN, and 29, RAY STREET, FARRINGDON ROAD, E.C.
THE LARGEST STOCK OF ALL KINDS OF WOODS IN EVERY THICKNESS, DRY, AND FIT FOR IMMEDIATE USE.
Telephone, No. 274 Holborn. Tele. Address "SNEWIN: London.

SZERELMEY STONE LIQUID
REPORT DATED 1ST FEBRUARY, 1899.
Stone House in Exposed Position on Yorkshire Moors. Ernest Newton, Esq., Archt.

HIGH LANDS, BURLEY-IN-WHARFEDALE, LEEDS.

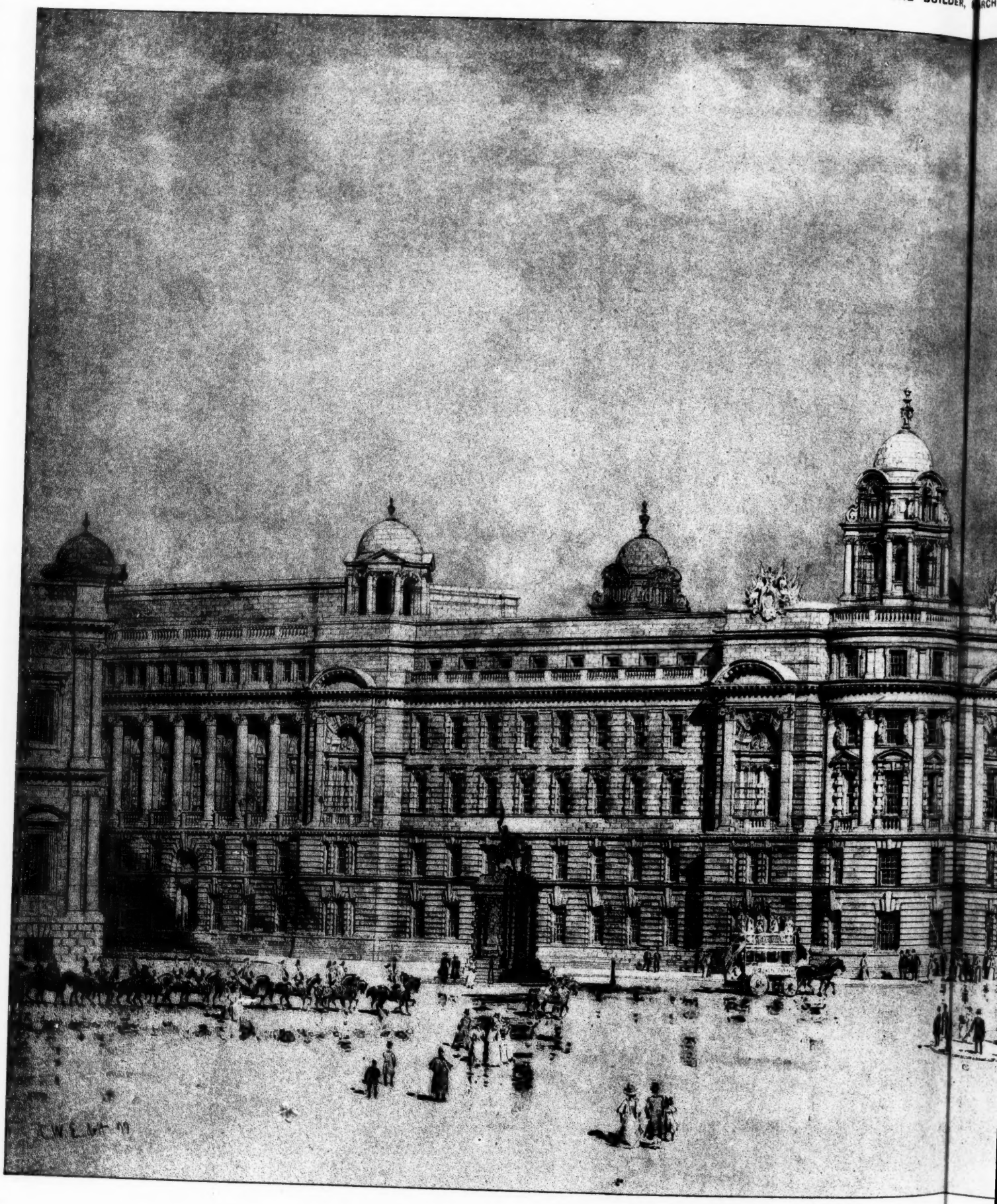
Dear Sirs,

I am glad to say that the test of the efficiency of the Szerelmey process, afforded by the severe gales and heavy rains of the last few weeks, has been entirely successful. The weather has been quite as bad as anything we had last winter—I think worse; but instead of the water being driven through the walls, as it was then, everything has kept perfectly tight and dry, and we have been saved the serious discomfort and damage which we suffered last winter.

I am very pleased with the result, and I consider that the very exposed situation of my house—just on the edge of the moors and subject to exceptionally strong westerly gales—has enabled me to put your process to as severe a test as you are likely to find in this part of the world, and I think you will be pleased to hear that it has stood the test with such complete success.

I am, yours truly,
(Signed) W. H. MITCHELL.

N. C. SZERELMEY & Co., Szerelmey Works, Rotherhithe New Road, S.E.



PROPOSED NEW WAR OFFICE.—MR. W. Y

FRONT TO WHITEHALL, AND PART OF FRONT

GENERAL LIBRARY,
UNIV. OF MICH.
APR 5 1899



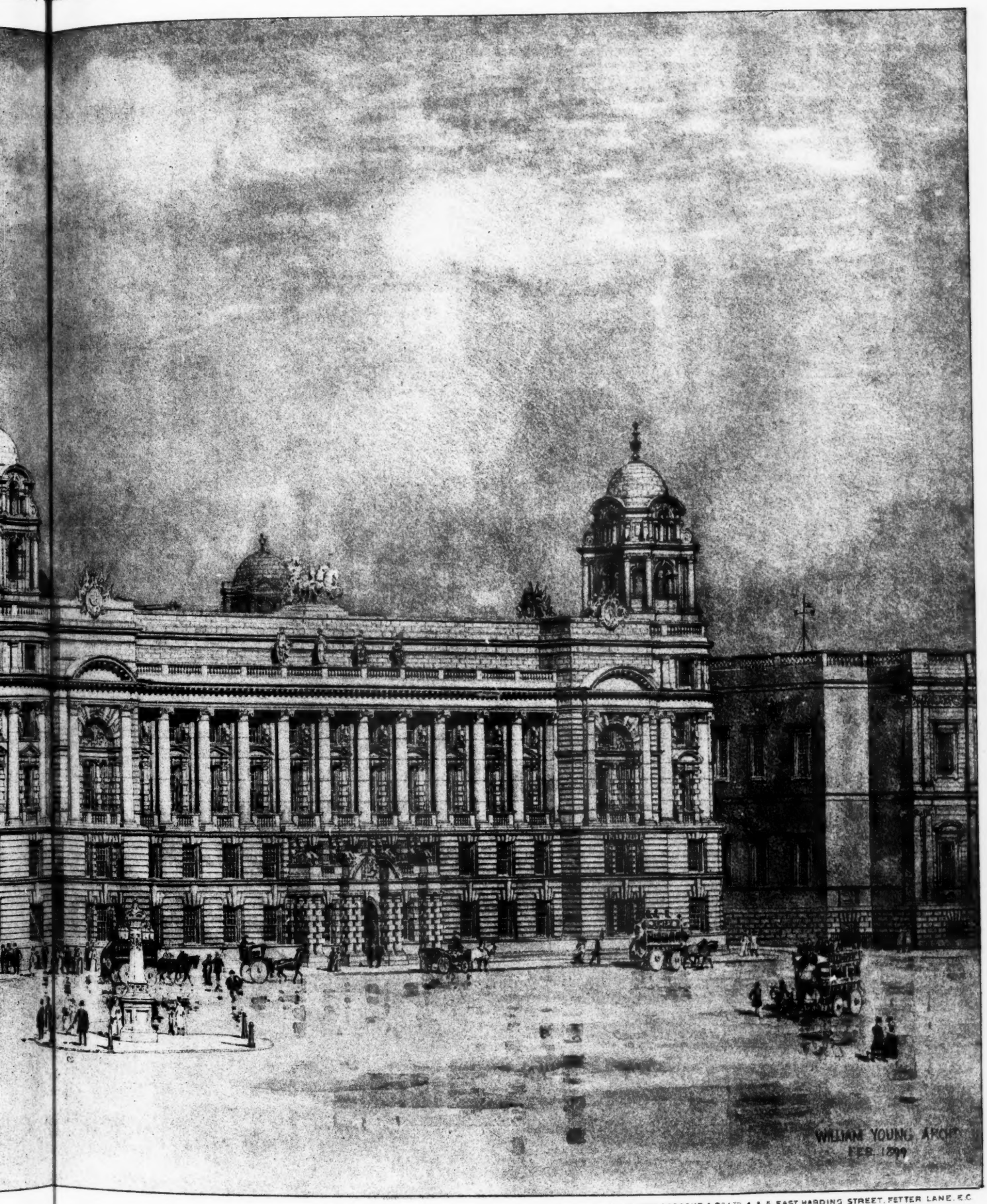



PHOTO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

OFFICE.—MR. W. YOUNG, F.R.I.B.A., ARCHITECT.

AND PART OF FRONT TO WHITEHALL PLACE.

Public Offices Westminster. No 2

CHARLES STREET

PARLIAMENT STREET

GREAT GEORGE STREET

Court

Entrance Hall

Entrance

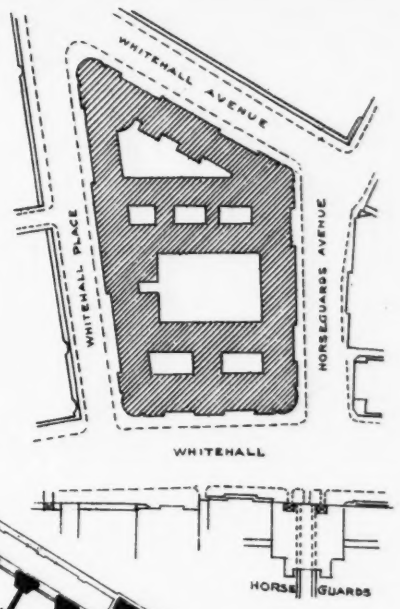
Plan of Ground Floor.

J. Macvicar Anderson, Architect
11 Hamilton Street W.
Dec 1898.

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EASTHARDING STREET, FETTER LANE, E.C.

GENERAL LIBRARY,
UNIV. OF MICH.
APR 5 1899

# WAR OFFICE
## WHITEHALL




WHITEHALL AVENUE

WHITEHALL PLACE

HORSE GUARDS AVENUE

OPEN COURT

OPEN COURT

OPEN COURT

OPEN COURT

QUADRANGLE

CARRIAGE ENTRANCE

ENTRANCE FROM QUADRANGLE

OPEN COURT

PRINCIPAL STAIRCASE

OPEN COURT

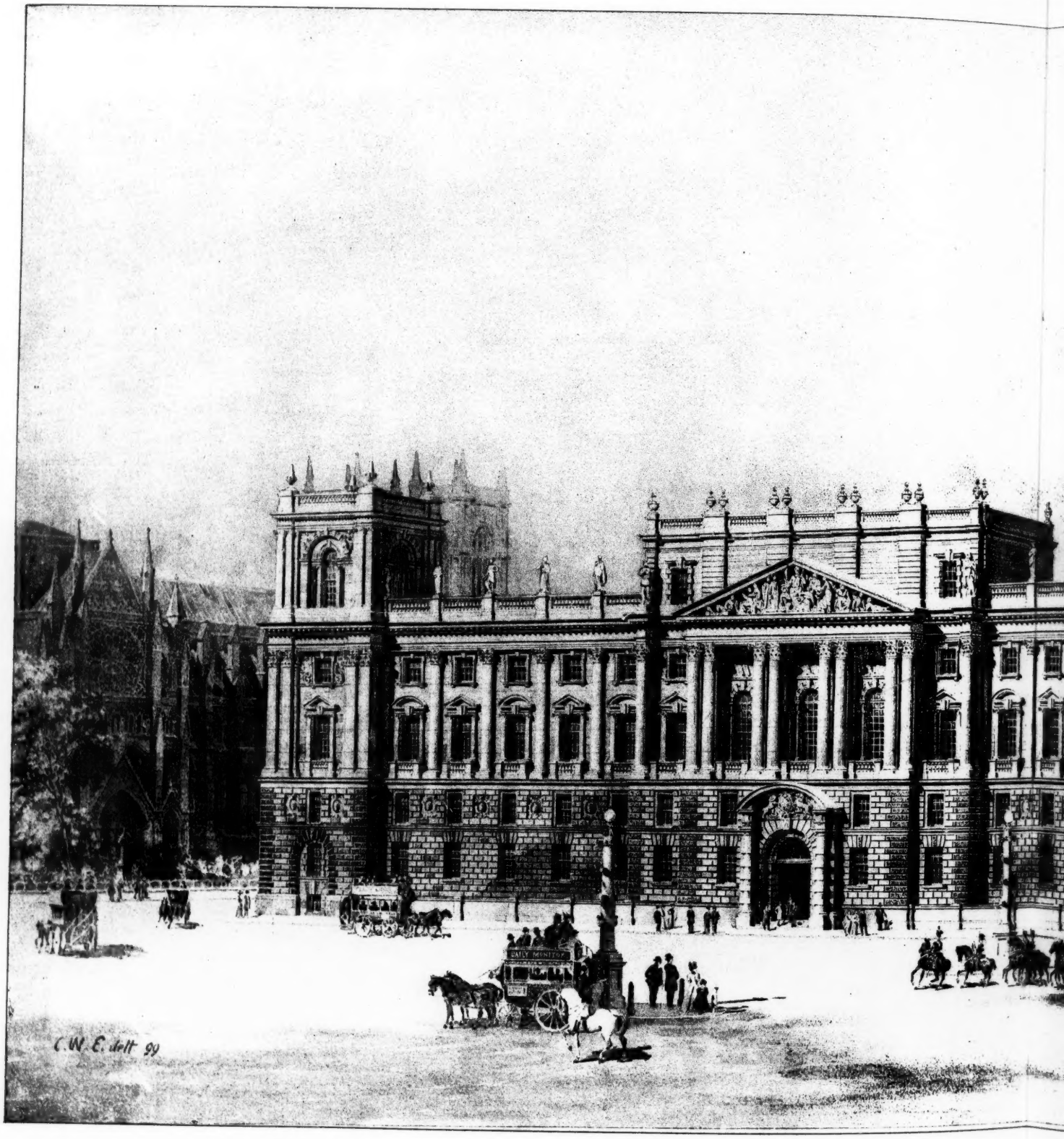
ENTRANCE HALL

FEET 0 5 10 15 20 25 50 100 FEET

WHITEHALL
GROUND FLOOR PLAN

Wm Young archt
61 Lancaster Place
London WC Jan 1899

PHOTO-LITHO SPHAGUE & Cº Lᵗᵈ 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.




PROPOSED NEW GOVERNMENT OFFICES: WESTMINSTER

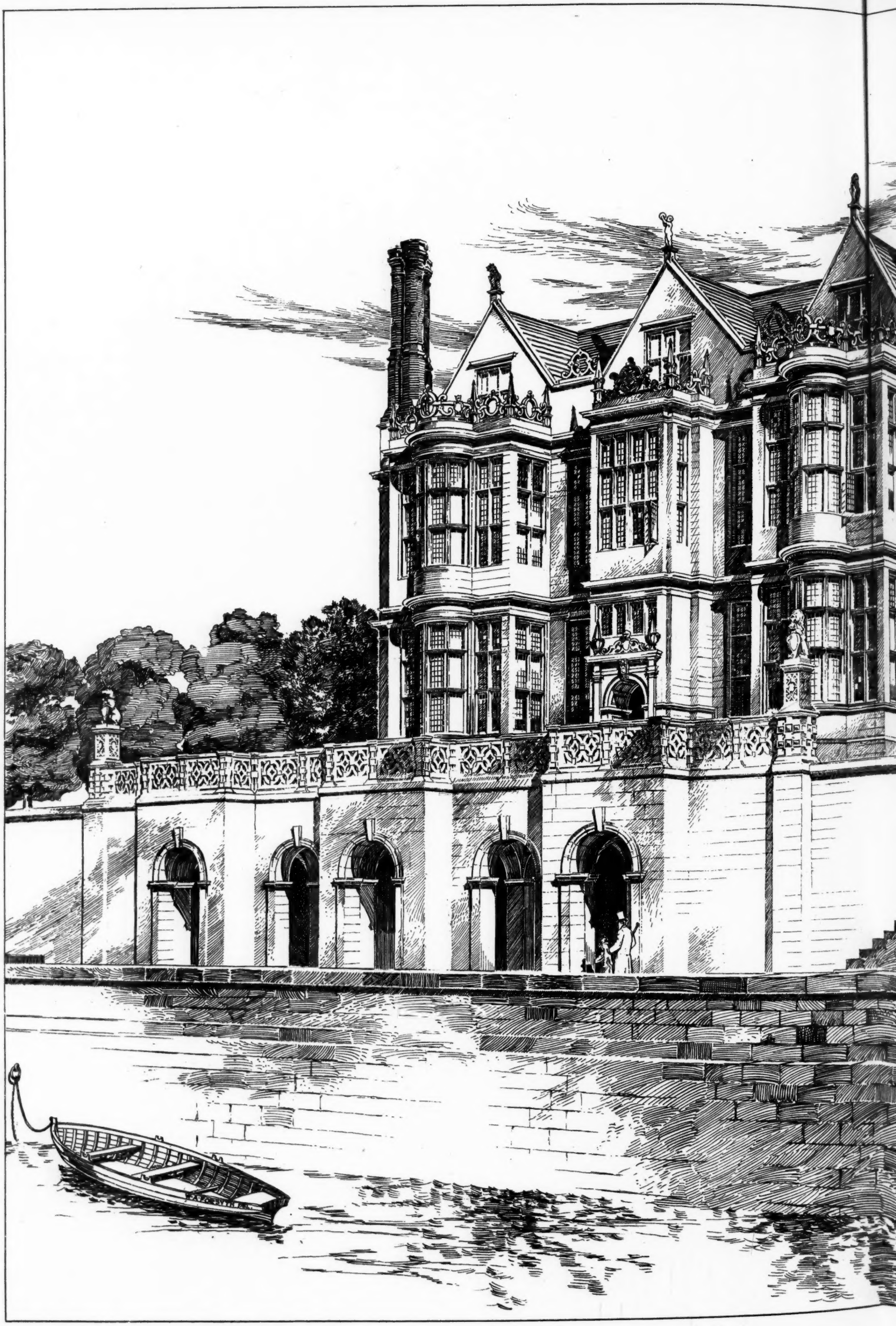
FRONT TOWARDS PARLIAME

GENERAL LIBRARY,
UNIV. OF MICH.
APR 5 1899

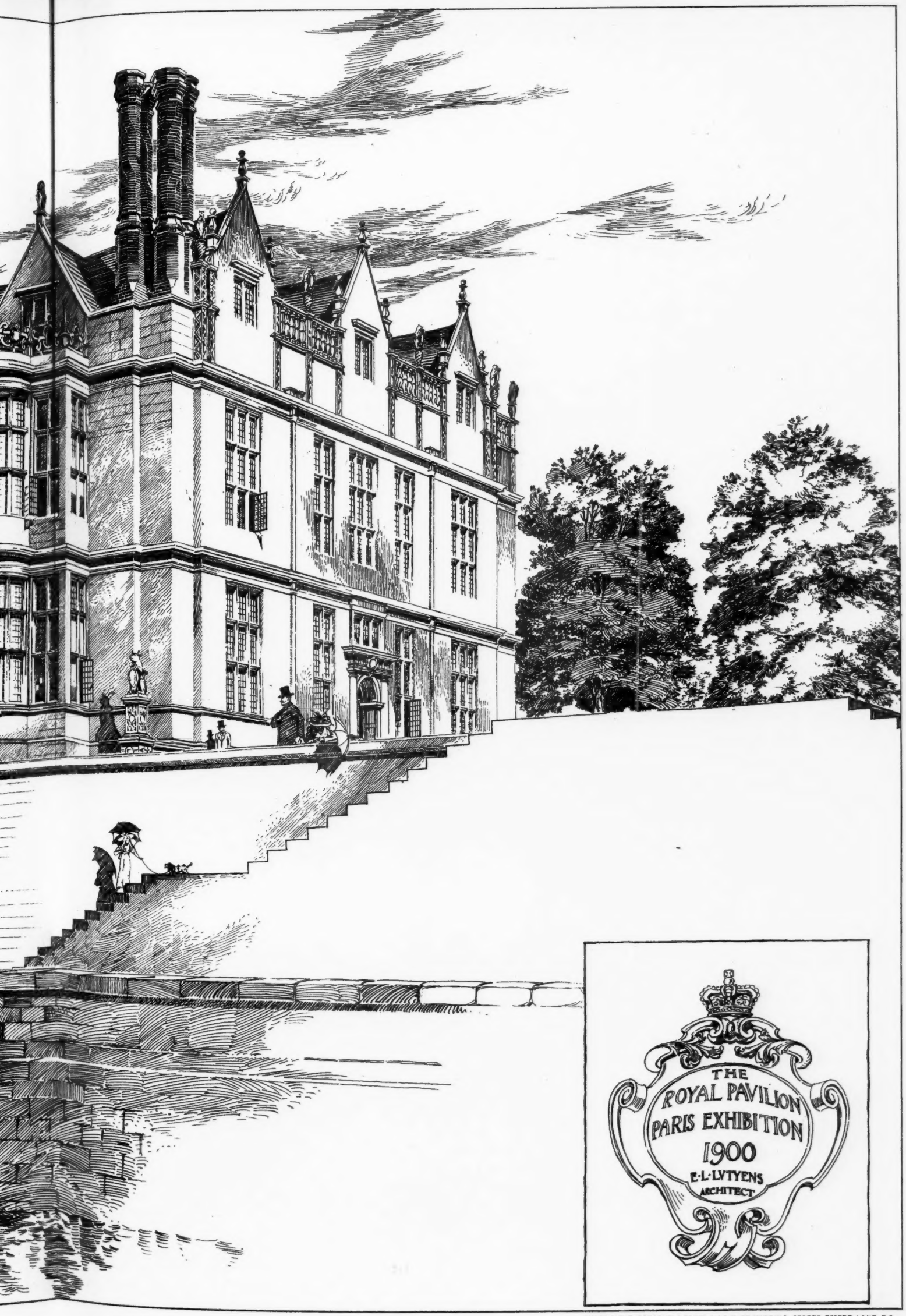
INK-PHOTO SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

ES: WESTMINSTER BLOCK.—Mr. J. M. Brydon, F.R.I.B.A., Architect

TOWARDS PARLIAMENT STREET.



GENERAL LIBRARY,
UNIV. OF MICH.
APR 5 1899



THE
ROYAL PAVILION
PARIS EXHIBITION
1900
E·L·LVTYENS
ARCHITECT

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.